The RUBBER AGE

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LATE NEWS of the Industry

General Tire & Rubber Company Buys Business of Yale Tire & Rubber

THE General Tire & Rubber Company on November 9 announced its purchase of the Yale Tire & Rubber Company, New Haven, Conn. General will manufacture Yale tires and tubes at Akron as a secondary lower-priced line, but will not take over the New Haven factory, it is understood.

"Yale tires and products will be manufactured in the future under the direction of the General tire production department," W. O'Neil, president of General, stated. "A complete line of Yale tires and tubes will be manufactured by the Yale company under the direct supervision of General tire engineers. It has been necessary to increase our facilities to make this possible." Mr. O'Neil added that the purchase of the Yale firm "indicates further concentration of tire manufacturing in Akron."

Incorporation of a new Yale Tire & Rubber Company in Ohio to handle the manufacture of Yale tires and tubes as a subsidiary of General has been authorized by Secretary of State Clarence Brown. The Yale company already is in production on its products, and they will be available immediately to General tire dealers both in this country and abroad. The Yale line will be more competitive and will enable General tire dealers to offer their customers a diversified selection in both tires and tubes.

The original Yale Tire & Rubber Company was established at New Haven in 1919. It has since that time produced cord and balloon tires and inner tubes under the brand names of Yale, Pilot and Wearyte.

The purchase was announced to 250 sales representatives of the General Tire & Rubber Company at a sales conference in Akron on November 10, during the course of which Mr. O'Neil predicted "good times" for the tire industry by next July. "I believe that 1932 will be a wonderful year for business, but let us not be fooled; good times may not be started yet, in spite of the fact that wheat is going up," he said. "I am inclined to believe that good times will not be definitely established in the tire business until next July although they may come as early as May."

President O'Neil declared that tire merchants had suffered less than many other kinds of retailers during the depression which he characterized as the "most severe panic in the past 40 years."

"There is a real opportunity for aggressive merchandising today," he said. "While the whole country is depressed, the stock market is low and the prices of commodities are foolishly low, there is hardly a General tire agent who is not doing more business than he was in 1927.

"They are making more gross profit, too, but they have been operating on 1929 overheads and some have not made as large net profits for that reason. Everything is too low today except overhead. Let's work with optimistic thought and energy and depression overhead."

President O'Neil advocated a return to tried and es-

Scanning the Headlines

Crude rubber rises briefly to the five-cent level and abruptly sinks back again . . . . **GENERAL** ***purchases Yale Tire & Rubber, giving it a second and lower-priced line . . . . Tire dealers gather at Detroit and hear pleas for cooperation to end trade abuses . . . .*** **NORWALK** ***ends fiscal year with profit as against losses of last two years . . . . October rubber consumption lowest for that month in eight years . . . .*** **STAUFFER CHEMICAL** ***forms hard rubber subsidiary . . . . Small September output lowers tire stocks further . . . .*** **GOODYEAR** ***puts new blimp into service . . . . Steamer Phemius lands record rubber caargo, with the Siljestaad on its way over with a still larger shipment . . . .*** **GARLOCK** ***goes in for rubber molded brake lining for industrial use, Allbestos for rubber molded automobile brake lining . . . .*** **GOODRICH** ***introduces variegated wringer rolls . . . . Tire prices are unchanged for spring dating . . . .*** **BALDWIN** ***leases Canadian factory . . . .*** **FENNER & BEANE** ***merge with Ungerleider.***

tablished merchandising methods, and pointed out that his company's policy of giving a well-qualified dealer exclusive representation in his territory and support from the factory had proved widely successful.

S. S. Poor, general sales manager; L. A. McQueen, trade sales manager; Vice-Presidents W. E. Fouse and C. J. Jahant and other General tire executives addressed the sessions of the conference.

September Tire Output Lowest of Year; Stocks at Smallest Figure Since 1925

PRODUCTION of pneumatic casings by domestic manufacturers for the month of September was the smallest for any month since December, 1930, totaling only 3,171,969 units, according to statistics released by the Rubber Manufacturers Association, Inc. Shipments dropped sharply but again exceeded output, bringing inventories in manufacturers' hands down to the lowest point since 1925.

Shipments of pneumatic casings of all types for the month amounted to 3,931,860 units, a decrease of 20.7 per cent under August as against the average seasonal decrease of 15.2 per cent, and 10.7 per cent below September, 1930. The number of tires produced in September was 18.8 per cent under August and 5.7 per cent below September of last year.

Pneumatic casings on hand September 30 amounted to 8,158,453 units, a decrease of 8.3 per cent under the August figure of 8,158,453 units, and 16.9 per cent below September 30, 1930.

A similar condition was again apparent in the case of inner tubes. During the month of September there were 3,449,289 inner tubes produced and 4,150,129 tubes shipped, leaving a stock in manufacturers' hands of only 8,095,239 inner tubes, barely sufficient for two months' requirements. Solid and cushion tire shipments exceeded output for the nineteenth consecutive month, once again bringing inventories down to a new low level for recent years.

The tire industry is estimated to have consumed a total of 37,317,729 pounds of crude rubber and 11,980,749 pounds of cotton fabric during the month of September in the manufacture of all types of tires and tubes.

The association's estimates are based on reports furnished by manufacturers who produce approximately 80 per cent of the total for the United States, but have been adjusted to represent 100 per cent in the figures quoted above.

Norwalk Tire Earns $98,508 in Year; Plans Revision in Capital Structure

THE Norwalk Tire & Rubber Company, Norwalk, Conn., has reported for the year ended September 30, 1931, net profit of $98,508 after depreciation, provision for doubtful accounts, etc., equivalent to $9.56 a share (par $100) on 10,304 shares of 7 per cent cumulative preferred stock outstanding at end of the year on which no dividends have been paid since April 1, 1927, and the sinking fund provisions of the preferred stock have not been complied with since June 30, 1926. After allowing for regular annual dividend requirements on the preferred stock, balance of $26,380 is equal to 17 cents a share on the 149,500 shares (par $10) of common stock outstanding at end of the year. This compares with net loss of $194,460 for year ended September 30, 1930.

Surplus account follows: Deficit September 30, 1930, $341,598; add: Additional federal taxes for prior years, $45,331; interest theron, $18,418; legal fees thereon, $12,890; local taxes prior years, $410; total deficit, $418,647; deduct: Net profit for year ended September 30, 1931, $98,508; excess of par over cost of preferred stock purchased, $20,512; unclaimed wages tranferred, $2,158; leaving deficit on September 30, 1931, of $297,109.

A revision in the capitalization structure of the company is indicated in a notice from that organization to the New York Stock Exchange. Shareholders will have their present stock exchanged for new shares under the plan.

The company proposes to change its authorized capital stock from 20,000 shares of preferred, par value $100, to 10,546 shares of $50 par value; and from 150,000 common shares of $10 par value to 202,730 shares of no par value. The preferred stock is to be exchanged on the basis of one share of new preferred and five shares of new common for each share of old preferred. The common stock is to be exchanged share for share, with the balance remaining to be used for the exchange of preferred shares.

The Norwalk Tire & Rubber Company was incorporated in 1914 and has been manufacturing automobile tires and tubes at Norwalk, Conn., since that time.

The common stock of the company has varied this year from a low of 50 cents a share to a high of $2 in recent weeks and is currently selling slightly under the latter figure on the New York Stock Exchange. The preferred stock is infrequently sold, but the bid and asked figures have risen recently to 13½ bid, 24 7/8 asked.

The consolidated income account for the year ended September 30, 1931, compares with the three previous years as follows:

	1931	1930	1929	1928
Gross profit on sales	$338,158	$105,705	$317,107	$663,488
Expenses	168,538	184,107	433,125	512,566
Oper profit	$169,620	*$78,402	*$116,018	$150,922
Other income	8,326	10,281	11,471	21,850
Total income	$177,946	*$68,121	*$104,547	$172,772
Depreciation	52,106	50,915	49,974	47,890
Discounts	15,324	3,123	29,282	48,919
Interest	.....	758	9,063	13,015
Bad debt res.	11,763	66,848	219,956	.....
Other Deduct.	245	4,695	2,503	16,065
Net profit	$98,508	*$194,460	*$415,325	†$46,883

*Loss. †Profit before federal taxes.

United States Factories in October Consumed Only 22,277 Tons of Rubber

CONSUMPTION of crude rubber by manufacturers in the United States for the month of October decreased 5.8 per cent as compared with September. The usual seasonal decline is 3 per cent, according to the Rubber Manufacturers Association, although during each of the past three years October consumption has exceeded that of September.

October consumption is estimated by the association to have been 22,277 long tons as compared with 23,638 long tons for September and with 27,516 long tons for October, 1930. Similarly to the September figure, the October consumption total is the lowest for that month since 1923.

Domestic consumption for the first ten months of the present year, based on the association's questionnaires for the first two quarters and its monthly reports thereafter, was 302,845 long tons. This compares with a consumption of 322,448 long tons in the same period of 1930 and with 416,403 long tons in the first ten months of 1929.

Imports of crude rubber for October amounted to 41,395 long tons, an increase of 2.2 per cent over the September figure of 40,505 long tons but a decrease of 5.3 per cent under October, 1930, according to the association's own estimates.

The Rubber Manufacturers' Association estimates total domestic stocks of crude rubber on hand October 31 at 273,456 long tons, an increase of 7.5 per cent over Sep-

tember and 47.4 per cent over October 31, 1930. This figure marks a new all-time high record for rubber stocks in this country.

Crude rubber afloat for United States ports on October 31 is estimated at 68,247 long tons as against 62,420 long tons on September 30 and 51,123 long tons on October 31, 1930. The total of visible stocks on hand and afloat to this country, therefore, rose to a new high record at 341,883 long tons, equal to more than 92 per cent of the country's total consumption for the full year of 1930.

National Tire Dealers Association Stresses Cooperation at Convention

COOPERATION between tire manufacturers and retailers to end abuses which have worked to the detriment of both was the principal topic emphasized at the 12th annual convention of the National Tire Dealers Association at the Hotel Statler, Detroit, Mich., from November 16 to 18. In addition to the business sessions, the gathering was featured by the usual exhibit of tire repair machinery and other dealer equipment. More than 500 independent dealers were reported to have been present at the sessions.

The morning of the first day was given up to a discussion of trucks and heavy-duty tires, following which H. S. Burdette, of the Goodyear Tire & Rubber Company, offered a paper on "Tire Dealers' Rim Problems." The afternoon was featured by the address made by J. F. O'Shaughnessey, general sales manager of the United States Rubber Company, who spoke in place of President F. B. Davis, Jr., of the same organization, who was unable to be present.

Mr. O'Shaughnessey talked frankly about conditions in the industry, refraining from mentioning any specific practices detrimental to the progress in the business, but indicating that they were general and serious enough to warrant immediate corrective action. He said that if six manufacturers would agree to eliminate poor business practices the problem would be solved, and intimated that it is up to the dealer to force the manufacturers to such action.

"If these practices are not discontinued within the next five years we will have to look for another crop of dealers —and another crop of manufacturers," he said.

"There is no need of my mentioning specifically what these practices are. You dealers are familiar with them and it is up to you to wash them out.

"Don't think the manufacturers are happy at this moment," he continued. "Their businesses are not being operated soundly at a profit today. I know of no excuse for being in business, whether it is the tire business or some other, except to make a profit. The dealer and the manufacturer should be in business to make a profit, not today only, but over a long pull. It is the responsibility of the manufacturer to get both the retail and manufacturing branches of the industry on the soundest profitable basis.

"Conditions change. For the last ten years the industry has been applying some unsound practices in its operation. Within the next five years some method will be found which will permit the distribution of tires through the independent tire dealer at the lowest possible cost. The manufacturers and the dealers will not survive on bad practices and extravagances. The responsibility for these practices rests primarily with the manufacturer. The weapons for correcting conditions are in the hands of the dealers. The manufacturers will discontinue them if the dealers insist. The responsibility for bringing about a change lies with the dealers.

"I don't say whether any other manufacturer ever admitted that his side of the industry was responsible for bad conditions in the industry. Maybe it is time some manufacturer acknowledged that the manufacturers are wrong."

The delegates to the convention on the second day, November 17, listened to interesting papers such as "Battery Merchandising," by Harry A. Harvey, sales manager of the USL Battery Corporation; "Brake Service and How to Merchandise It," by Harry L. Faust, sales manager of the John Bean Manufacturing Company, and "Wheel Alignment," by Will Dammann, president of the Bear Manufacturing Company. In the afternoon the card called for discussions of tire sales from the viewpoint of the superservice station, handled by Martin O'Neill, manager of dealer relations of the Firestone company, while the other side, "Tire Sales from a Strictly Tire Store Standpoint," was handled by Arthur Randall Lee, distributor in the Twin Cities.

The third and final day was featured by the usual wind-up banquet in the evening at which James D. Tew, president of the Rubber Manufacturers Association and of the B. F. Goodrich Company, was the guest of honor. The morning session was given over to the reading of three good papers. S. B. Harper, director and a past president of the association, offered "Opportunity of the Independent Dealers"; R. D. Woodbury, secretary-treasurer of the Polson Rubber Company, talked on "Extra Profit on Puncture Sealing Tubes," and William H. Schaeffer, of Erwin, Wasey & Company, handled "Tire Dealers' Advertising Problems."

Tire Prices Are Left Unchanged by Leading Companies for Spring Dating

PRINCIPAL tire manufacturers are entering the spring dating period for tire sales with no change in prices on any of the various lines manufactured. Companies which have made no changes include the Goodyear Tire & Rubber Company, the Firestone Tire & Rubber Company, the B. F. Goodrich Company and the General Tire & Rubber Company.

The spring dating period extends from November 15 to May 15 and is the period within which dealers lay in stocks for spring business. The prices made at the beginning of that period are guaranteed to dealers against decline, meaning that if lower prices are later effected in the period dealers are rebated on tires bought at the previous price. In the case of price increases, no adjustment, of course, is necessary. Tire plants are reported to be boosting output to meet spring dating demand.

Keep Wednesday, December 16, Open For Meeting of N. Y. Rubber Group

THOUGH complete plans for the next meeting of the New York Group of the Rubber Division, American Chemical Society, are not available at this time, members are assured by the officers of the group that an elaborate program is being arranged to surpass, if possible, the famous Xmas Party held last year at the Park Central Hotel.

The time: Wednesday, December 16.

The place: Clubrooms of the Building Trades Employers Association, 2 Park Avenue, New York City.

Full details will be announced early in December, but you are urged meanwhile to be certain to reserve that night for this event.

(Other news of the industry will be found on Pages 175-180)

Rubber Goods Exports— Nine Months, 1931

ALTHOUGH the total value of United States exports during the first nine months of 1931 declined more than 37 per cent as compared with the same period last year, the rubber industry showed comparative strength, for its exports decreased only to $32,154,789 from $48,947,962, or by 34.4 per cent, according to reports of the Department of Commerce. When compared with the losses sustained by some of the other rubber manufacturing countries, this is not an unfavorable showing.

It must also be remembered that the market price of crude rubber during the period under review fell to the unprecedented level of less than 5 cents a pound, and, naturally, the price of manufactured rubber products reflects this drop to some extent, and thereby tends to exaggerate the apparent size of the decline. The decrease in volume has not been quite so great as that in value.

Despite the fact that the figures for September show little improvement, the better business sentiment which has been noticeable in the United States and many of the more important markets during the last few weeks is bound to have a beneficial effect upon exports of rubber goods, and in addition the extreme severity and long duration of the present period of subnormal buying makes it seem likely that the consumers' shelves are bare, and necessary buying must soon set in.

Apparently contradicting the general belief that automobiles are considered as luxuries in most foreign countries, and that automotive products are particularly hard hit in times of depression, total United States exports of rubber goods used in automobiles declined by only 31 per cent during the first nine months of 1931, or less than the average drop for rubber product exports. This is primarily due to the continued development of truck and bus operation throughout the world and the large share of the United States in this field.

Foreign Competition Growing

As contrasted with the first nine months of 1930, the quantity of truck and bus casings exported from the United States during the first three quarters of the present year was down 12 per cent—a relatively favorable showing. Exports of automobile inner tubes declined 22 per cent in value, but other casings actually gained 11 per cent in quantity, although losing somewhat in value. This, in part, reflects the growing demand for bicycle tires.

The United States exports of rubber footwear have suffered a larger decline than any other class of rubber product, the decrease in the 1931 period amounting to 52 per cent.

An examination of the world trade in these articles shows that the rapidly developing rubber footwear industry in Soviet Russia has cut into our markets in the Baltic and Balkan countries; that the growth of the Czechoslovak and British producers has affected European sales; and that the tremendous increase in Japanese exports has changed the whole trend of the trade in the Orient. India, the Far East, China and Japan are price markets, and the fact that Japan can lay down rubber footwear in these regions at somewhat like one-half the American price makes competition on this basis an impossibility.

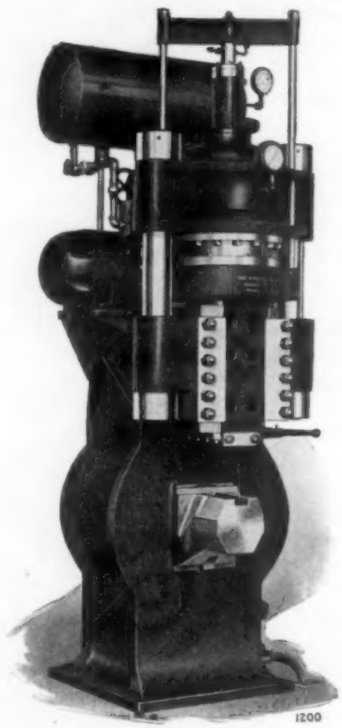
In view of these developments, it is not surprising that compared with the first nine months of 1930, exports of rubber boots are down 22 per cent, rubber shoes 58 per cent, canvas rubber-soled shoes 56 per cent, rubber soles 27 per cent and rubber heels 35 per cent.

Hydraulic Horning Press

THE French Oil Mill Machinery Company, of Piqua, Ohio, builders of all types of hydraulic press equipment, have recently developed a high-speed, hydraulic press unit, introduced under the trade name 'Hydromatic.' The press is a completely self-contained unit with motor, pump, control gear, etc., mounted on the top of the press. It is of 300 tons capacity.

Four of these Horning presses were recently installed in the plant of the Firestone Steel Products Company and are reported to have given complete satisfaction. It is possible to operate them continuously on a cycle speed of 35 strokes per minute.

It is claimed that these presses embody the advantages of speed, simplicity of operation, flexibility for moving into various locations of the plant, which obtain in a mechanical



Horning Press, Built by the French Mill Machinery Company for the Firestone Steel Products Company

press and at the same time combine smoothness of operation with a rigidity of construction and safety in operation.

These presses are also made in the usual column types, and also with the columns inclosed in large housings for gib guiding the moving platen—the same construction as is followed on large crank presses. Hydraulic die cushions for drawing may also be built into the presses. These presses are made in sizes and capacities to suit any demand.

With these "Hydromatic" units operation is by foot pedal or hand lever, and the hand lever also acts as an emergency release at any part of the cycle by motion of the lever upward. The unit can be set to operate at any desired stroke or pressure, and when this pressure is reached the press may be set to instantaneously reverse to open position; or it can be set to hold the desired pressure for any desired period of time and then automatically return to the open position. The opening of the press is adjustable, by means of the setting of a collar on a control rod.

Some Properties of Carbon Black

II—Moisture

By W. B. WIEGAND AND J. W. SNYDER

Binney and Smith Company

Editor's Note: **The following paper is Part II in the series of three by the same authors, dealing with various specific properties of carbon black. It is reprinted in part, herewith, from the *Canadian Chemistry and Metallurgy*, October and November, 1931, to which due acknowledgment is made. The only part of the paper omitted dealt with the moisture requirements of blacks used in the paper, ink, carbon paper, paint and lacquer and gramophone record industries. Part I of the series, on Adsorption, was presented as a paper before the Rubber Division, A. C. S., at Indianapolis, Ind., April 1, 1931, and was later printed in *Industrial and Engineering Chemistry*, June, 1931. Part III of the series, on Volatile Matter, was presented as a paper before the Congres des Techniciens du Caoutchouc, at Paris, June 13, 1931, and later published in THE RUBBER AGE, July 10, 1931.**

IN 1922 Wilson and Fuwa[1] mentioned carbon and lampblacks as members of a group, also including finely divided inorganic substances (coke, rubber, cellulose acetate and silk), which showed a range of moisture content of 0 to 4 per cent for 50 per cent relative humidity; and 0 to 6 per cent for 90 per cent relative humidity. At constant relative humidity they found surprisingly little change in the equilibrium moisture content of most substances over the range of indoor temperatures.

Bureau of Mines Bulletin No. 192, 1922,[2] gives analyses of various blacks "as received" without mention of humidity conditions. Roller (long) blacks gave higher moisture values than channel or disc process blacks.

C. R. Johnson in 1928[3] showed that a 12½ pound bag of carbon black, whether compressed or non-compressed, when exposed to a damp atmosphere took up water for six days reaching 2.5 per cent, and then required eight days to reach the original condition of 1.5 per cent. The same author[4] gave as the combined moisture 0.3 to 0.7 per cent. This value was obtained by heating the sample at 950° C, absorbing the water in calcium chloride, and subtracting from the value thus obtained the loss at 105° C. A series of carbon blacks showed a range in "normal" moisture of from 1.3 per cent to 4.3 per cent, the latter being for the "roller" type of ink blacks.

Carson[5], by use of a distillation method involving a mixture of volume of xylene and mineral oil, reported moisture contents of 1 per cent for "color" black, and 5 to 6 per cent for "rubber" black.

Plummer,[6] however, considered that the method used by Carson was subject to several errors and that his high values for "rubber" blacks were probably due to the oxidation of the mineral oil by the oxygen of the carbon black.

Wiegand, Boggs and Kitchin[7] have published values for moisture regained by "rubber" carbon black (Micronex) at room temperature, in comparison with the values for chalk whiting. Samples were exposed for two months to various relative humidities in closed desiccator jars. Whiting showed gradually increasing moisture content up to about 0.5 per cent. at 90 per cent relative humidity; Micronex reaching under similar conditions 4.5 per cent.

The same authors showed that an increase in temperature from 30° C to 100° C caused a marked decrease in moisture pick-up, the curve being convex to the temperature axis.

Experimental

It was thought of interest to extend the study of moisture regain to carbon blacks other than those of standard rubber quality. Rubber black, a color black and a highly active color black were exposed in a bone-dry condition to a saturated atmosphere at room temperature for times ranging from one hour to twelve days. The results are shown in Figure 1. In the case of the rubber black, the moisture pick-up at the end of four days had reached a practically constant value of 4 per cent. This value is in substantial agreement with earlier results.[7] The behavior of the color blacks was different. In both cases there was a rapid moisture regain, showing in less than six hours values of respectively 6 per cent and

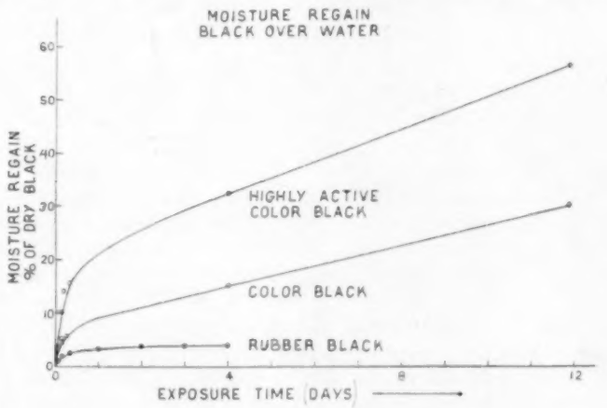


Figure 1

16 per cent moisture. On continued exposure to the saturated atmosphere, the color blacks showed a further continuous increase in moisture absorption, reaching at the end of twelve days values of, respectively, 30 per cent and 56 per cent moisture.

The continued absorption of moisture by the color blacks, after a period when standard rubber black had reached an approximately constant value, may perhaps be explained by capillary action. The comparative absence of such capillary action in the case of rubber black may be partly due to the faint traces of oily matter associated with this grade. Color blacks, being made at higher temperatures, have less oily matter. In any case, these data emphasize the necessity for care in the storage of color blacks wherever excessive moisture might work damage.

In view of this avidity of carbon blacks of all qualities for

moisture, it seemed of importance to find out the normal moisture content at the time of packing. A series of data was therefore assembled embodying control tests on the moisture of a standard rubber carbon black over a period of two and one-half years. In each case samples were taken from the packer and the moisture determined as the loss in weight after one hour's heating at 105° C. The results, arranged according to monthly averages, are shown in Table I.

TABLE I

	1927	1928	*Average*
January	...	1.9	1.9
February	1.4	2.1	1.8
March	1.4	1.9	1.7
April	1.6	1.6	1.6
May	1.7	2.1	1.9
June	1.4	1.8	1.6
July	...	1.6	1.6
August	2.0	1.9	2.0
September	2.0	1.3	1.7
October	1.9	1.8	1.9
November	2.0	1.0	1.5
December	1.9	1.7	1.3

This table reveals no correlation between time of year and moisture content at the packer.

In order to evaluate the normal moisture content under these conditions, the above results were thrown into a frequency table, shown as Table II.

TABLE II

Moisture Frequency Table

Class Interval	*Occurrences*
.4 — .5	1
.5 — .6	0
.6 — .7	4
.7 — .8	6
.8 — .9	10
.9 — 1.0	12
1.0 — 1.1	14
1.1 — 1.2	22
1.2 — 1.3	21
1.3 — 1.4	20
1.4 — 1.5	36
1.5 — 1.6	27
1.6 — 1.7	29
1.7 — 1.8	19
1.8 — 1.9	13
1.9 — 2.0	16
2.0 — 2.1	13
2.1 — 2.2	8
2.2 — 2.3	3
2.3 — 2.4	1
2.4 — 2.5	0
2.5 — 2.6	1
Total	276

FREQUENCY CURVE

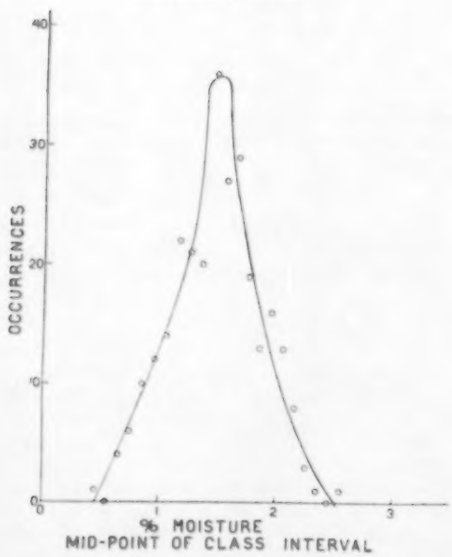


Figure 2

These values are shown as a frequency curve Figure 2. The model value was determined* and found to be 1.46. The arithmetic mean of these values came out at 1.47, thus indicating marked symmetry.

Practical Aspects of the Moisture Problem in Carbon Black

From what has been said above it is clear that a shipment of black may be expected to show a wide range of moisture values: from possibly 1 per cent or 1.5 per cent up to 5 per cent, 7 per cent and even sometimes up to 10 per cent, the latter in cases of direct exposure to rain or very high humidity. This raises the question as to the effect of moisture on the value of carbon black when used in the arts.

Moisture in "Rubber" Carbon Black

A comparative test was made, using a standard rubber carbon black** which was treated in two ways. In the first place the black was dried in an electric oven for forty-eight hours at 105° C, and, in the second case, exposed to an atmosphere of steam until it took up practically the maximum, viz. 5 per cent. The two blacks were then mixed into the following rubber compound:

B. & S. No. 1***

Rubber	93.0
Black	35.0
Zinc Oxide	3.0
Sulphur	5.0
D. P. G.	0.75

*By the method of grouping
**The brand known as "Micronex" was employed.
***This mixing, although not representative of a modern tire tread, is very sensitive to variations in cure and reinforcement.

The results are shown in Table III.

TABLE III

Wet. vs. Dry Carbon Black

Stress Strain Data*

Carbon Black—Dry

Cure @ 288° F.	*L*-300	*L*-400	*L*-500	*L*-600	*T/E*
30 min.	67	116	183	260	310/650%
40 min.	74	130	207	281	324/640%
60 min.	88	144	215	296	310/610%

Carbon Black—5% Moisture

30 min.	60	105	172	250	296/650%
40 min.	70	123	190	271	316/640%
60 min.	88	144	218	—	296/590%

Abrasion Resistance*

Cure @ 288° F	*Black—Dry*	*Black—5% Moisture*
35 min.	170	171
45 min.	167	168
65 min.	188	187

Penetration

Cure @ 288° F	*Black—Dry*	*Black—5% Moisture*
35 min.	53	52
45 min.	53	53
65 min.	52	52

*Load values are kilos per sq. cm.
**The higher the value the better the abrasion resistance. (*U. S. Rubber Type Machine*).

This table shows that having regard either to the stress strain characteristics or to the abrasion resistance values there was no significant difference between a rubber compound (of tread type) made up with bone-dry carbon black and with carbon black containing its maximum of 5 per cent of moisture.

It should however be pointed out that in this mixing the accelerator employed, D.P.G., is not hygroscopic nor sensitive to moisture. Under other conditions, as for example with Hexa., the result might have been quite different. In general the temperatures reached in the mixing, warming and calendering of tread-type rubber compounds are sufficiently high to make it improbable that the moisture content, at the end of the processing, could reach a dangerously high value.

In any event, practice in most divisions of the rubber industry is not to devote much time or expense in the way of a meticulous drying-out procedure. Shipments of carbon black should be

stored in the warmest and driest available space. A word of caution is, however, necessary in certain divisions of the rubber industry such as rubber footwear. In rubber footwear compounds there is frequently a high percentage of softener resulting in lower processing temperatures during milling, calendering, etc. Under such circumstances moisture is not so readily removed and in case of very moist pigments there is the possibility of trouble from blistering or porosity during the subsequent cure.

It is true that in modern rubber footwear plants vulcanization almost always occurs with the aid of air or steam pressure, or both. If this air or steam pressure is sufficiently high, namely 40 pounds or more at the very beginning of cure, the danger of porosity or blistering even in high-carbon rubber mixings is relatively remote. On the other hand there are still quite a few rubber footwear manufacturers who vulcanize their "light rubbers" in the so-called "box heater." In such cases moisture in the compounding ingredients may well result in porosity with resultant damage to quality and appearance.

Effect of Excess Moisture of Wetting Down

No discussion of the effect of moisture on the properties of carbon black as used in the rubber industry would be complete without mention of the striking change that occurs in this pigment when completely wetted down. Under these circumstances the "moisture" forms a continuous phase in which the carbon black particles constitute the dispersed phase.

The first effect is the displacement of air. An idea of the amount of air entrained in ordinary carbon black may be gleaned from the fact that whereas one cubic foot of carbon black without entrained air would weigh 109 pounds (specific gravity 1.75), the same volume of carbon black as ordinarily shipped in a paper bag weighs only 12½ pounds. This is tantamount to saying that in an ordinary bag of uncompressed carbon black there is one part by volume of true pigment together with nine parts by volume of air.

Many attempts have therefore been made to eliminate the air from carbon black by wetting down either in water or in water containing small percentages of oily or soapy material. The patent literature is replete with descriptions of these and of processes involving the use of other liquids such as tar, etc. Why has not carbon black long ago been furnished in some such "de-gasified" form? The reason has been very clearly illustrated by C. A. Klein[8]:

> "Pigments prepared by precipitation do, on subsequent drying, show a tendency to form what are known as water-bound aggregates. These aggregates behave as single coarse particles, although they may be readily broken up when the proper method is adopted, but often too highly resistant in other circumstances."

In the course of some studies made in these laboratories on the elimination of entrained air through wetting down of carbon black[9] it was concluded that the undesirable texture referred to above was due to the combination of several circumstances operative during the evaporation of the liquid phase;—

1. Free Meniscus: The same surface tension forces which cause two straws or other small objects floating down stream to adhere to each other, operate upon adjacent particles of pigment present at the surface of any liquid.

2. Vortex Action: When the liquid evaporates there is a violent small-scale vortex action which causes the suspended particle to adhere so that when evaporation is complete a cake results.

3. Volume Concentration: During evaporation there is of course a contraction in volume, thus compacting the suspended particles and once more tending toward close adhesion.

4. Close Piling During Sedimentation: During evaporation of the liquid there is a sedimentation or lamination which causes the particles to assume close or tetrahedral piling. The smaller particles lodge themselves in the interstices between larger particles according to the principle of minimum voids.

After many attempts to secure the advantages of wetting down without the attending changes in structure and texture caused by the various factors alluded to above, a method was finally devised[9] which has since met with commercial success because it eliminates the defects inherent in the evaporating process.

The method employed, which will be described in greater detail in another place, was chiefly that the wetting down liquid was displaced by another liquid of greater affinity for the pigment. This second liquid is, however, present in strictly limited amount so that when the change of phase occurs and the pigment particles become wetted by this liquid the latter is not present in sufficient amount to generate a continuous phase, show a meniscus, develop vortices during evaportation, etc. The result is that the dried out pigment, instead of assuming a harsh texture difficult of dispersion in rubber or other media, becomes a loosely compacted, friable, and easily dispersible mass which has nevertheless been separated from its envelope of entrained air.

The same principles apply in the case of pigments other than carbon black and in the case of liquids other than water. The exact technique employed depends of course upon the character of the pigment and in particular upon its wetting peculiarities.

The above references to the effect of wetting down, or excess moisture, on carbon black is inserted partly to emphasize the importance of proper handling of shipments of black in case such black has been wetted down during the ocean passage or through exposure to rain at any time. The first point is not to dry out the black too quickly. Next it is suggested that after the black has been dried out it be allowed to stand for several weeks (or if convenient even longer) in a warm place. This has a tendency toward slightly softening the texture of the caked material. Finally, before using such black a special test should be carried out to see whether in the given formulation and medium, the black has lost all or part of its dispersibility. This simple precaution may well save annoying damages to quality.

SUMMARY

1. A standard rubber carbon black when exposed in a bone-dry condition to a saturated atmosphere at room temperature reached a practically constant regain value of 4 per cent at the end of four days.

2. A typical color black when exposed under the same conditions reached a regain value of 6 per cent within six hours but continued to absorb moisture up to twelve days reaching a value of 30 per cent.

3. A very highly active color black exposed under similar conditions regained 16 per cent of moisture within six hours, 56 per cent after twelve days, and still had not reached equilibrium.

4. A statistical study was made of the normal moisture content of standard rubber carbon black at the packer. From 256 tests both the modal value and the arithmetic mean came out at 1.5 per cent. The actual moisture to be expected in carbon black at the time of arrival at a works may of course range anywhere from 1 to 10 per cent, or even higher in cases of direct exposure to rain, etc.

5. A sample of bone-dry carbon black was compared with a sample containing 5 per cent moisture in a tread-type test mixing accelerated with D. P. G. After vulcanization no difference could be observed in the physical properties, in the abrasion resistance, or in the hardness.

6. Carbon blacks for the paper industry are preferably of hydrophillic character. Ink blacks are preferably left undried unless the moisture exceeds 5 per cent. Blacks for carbon paper should be dry. Paint blacks should not exceed about 5 per cent of moisture. Carbon blacks for gramophone records should not exceed about 3 per cent.

7. The effect of wetting down a carbon black is to displace entrained air; but subsequent drying tends to form water-bound aggregates which are difficult to disperse. A patented process is described which eliminates this disadvantage through the use of two imiscible liquids in certain definite proportions. The result of such treatment is a non-flying, but easily dispersible form of carbon black. The same process is applicable to other pigments.

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Tire Exports—First Six Months, 1931

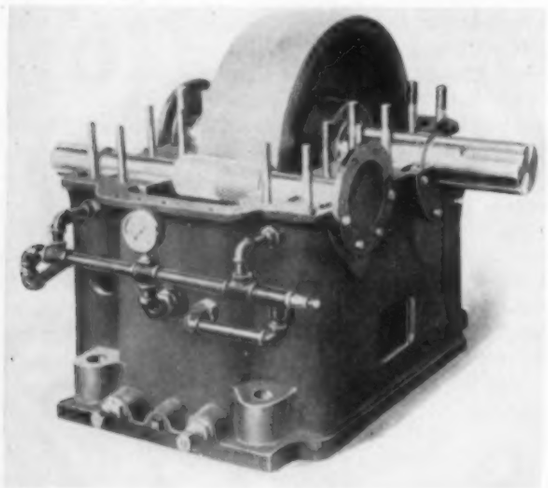
EXPORTS of pneumatic casings for automobiles by the principal manufacturing countries are estimated as amounting to 3,402,000 in the first six months of 1931, compared with 4,436,000 in the same period of 1930—a decline of approximately 23 per cent in quantity, according to the Department of Commerce. World economic conditions are largely responsible for the adverse trade tendency, although the activities of foreign branches of American tire factories also adversely affected the American share of this trade. Eight countries figure to an important extent in the export trade in tires—Belgium, Canada, France, Germany, Italy, Japan, United Kingdom, and the United States.

All of the countries embraced in this article registered trade losses in the first six months of 1931, compared with the same period in the preceding year. Individual trade losses were as follows: Belgium 7.4 per cent, Canada 46.4, France 7.5, Germany 45.8, Italy 3.6, Japan 11.3, United Kingdom 23, and the United States 22.2. As previously stated, the activities of foreign branches of American tire companies were responsible to a large extent for the loss of 22.2 per cent in United States tire trade abroad. The loss in trade to Argentina, in which country two American tire plants are operating at this time, amounted to over 68,000 casings for the United States and to 80,000 for Canadian manufacturers. Similar losses in Argentina were encountered by other tire manufacturing countries.

New High Speed Gear Units

A NEW series of high speed gear units, designed for connecting Diesel and gas engines to centrifugal pumps and similar service, are the latest appliances to be brought out by the Farrel-Birmingham Company, Inc. The gear units are suitable for speeds up to 6,000 r.p.m and powers from 120 h.p. to 2,500 h.p., with ratios up to 10 to 1 for either increasing or reducing speed.

The accompanying illustration shows one of these gear units with the cover removed to expose the gears, which are the Farrel-Sykes herringbone continuous tooth type.



Farrel-Birmingham High Speed Gear Unit

A complete lubrication system is provided, together with an oil cooler consisting of a coil of copper pipe placed at the bottom of the gear case. The bearings are steel or bronze shells lined with high grade babbitt. The gears have no axial float. Rigidity of the mounting of the gears minimize vibration and insure durability.

Abandoned Rubber Acreage

OFFICIAL statistics reporting areas out of tapping in the Straits Settlements, Federated Malay States, Johore and Kedah on estates of 100 acres and over for July show a total estate area of 83,597 acres out of tapping on estates which have *entirely ceased tapping,* according to Department of Commerce figures. This figure represents an increase of 6,637 acres from the June total of 76,960 acres, and is 4.7 per cent of the estimated acreage planted with mature rubber on estates of 100 acres and over at the end of 1930, totaling 1,768,567 acres.

The figures for July report a decline of 7,251 acres out of tapping on estates which have *partly ceased tapping,* from 198,815 acres in June to 191,564 acres in July. The statistics indicate that 15.5 per cent of the total acreage planted on the estates reporting was out of tapping in July, compared with 15.6 per cent in June.

World Gasoline Prices

THE following tabulation shows the retail gasoline prices in various countries of the world during the second quarter of 1931, as compiled by the Petroleum Section, Minerals Division, of the Department of Commerce. The prices quoted are not entirely comparable without taking into consideration the various factors which tend to make inequalities in price, such as distance from source of supply, transportation costs, import duties, excise taxes, marketing costs and the quality of the product sold.

Gasoline sold highest in Nairobi, Kenya, and lowest in Abadan, Persia.

	U. S. cents per gal.
Argentine, Buenos Aires	24.0
Australia, Sydney	39.3
Bolivia, La Paz	50.4
British Malaya, Singapore	42.0
Chile, Santiago	41.3
Cuba, Havana	24.0
France, Marseille	31.0
Germany, Berlin	22.5

Flexible Lacquers

A FLEXIBLE rubber lacquer, giving a durable and glossy surface to rubber products is being offered to the trade by the Roxaline Flexible Lacquer Company, Inc., 55 Thirty-sixth street, Long Island City, N. Y. The lacquer is available in 16 standard shades.

While the company claims to manufacture these flexible lacquer enamels for application on almost any type of rubber product, they have found that the compositions of rubber molded products vary so greatly that they recommend special research work, on their own part, in adapting their formulae for application in each specific case.

Viscosity of Cements

A SIMPLE device for quickly and quite accurately test the viscosity or "thickness" of rubber cements is as follows. Mount vertically a hollow glass tube about ¼" inside diameter and 15" long. With narrow gummed tape mark two places 10" apart on the tube. Fit a piece of rubber tubing to the top of glass tube. Place a small can of the cement to be tested so that the bottom of glass tube goes into it to a depth of about 1". Apply suction to the rubber tube, till the cement is drawn into the glass tube to about 1" above top mark. Lower the cement can below bottom end of glass tube, and allow cement to run out. The time in seconds measured with a stop watch for the cement to drop from the top to bottom mark is a relative measure of the viscosity. — R. R. Olin Laboratories, Akron, O.

Toxic Substances *in the* Rubber Industry

PART XXIII

By **P. A. DAVIS, A.B., M.A., M.D.**

Assistant Medical Director, Goodyear Tire & Rubber Company

Tetramethyl Thiuram Disulphide

TETRAMETHYL thiuram disulphide is an accelerator which is sold under a trade name of Tuads. When of a high purity it is a white amorphous powder with a slight sulphide odor. Less pure it is gray-white with a distinct disulphide odor. It is practically insoluble in water, alkaline solution and acid solutions. It is soluble in the ordinary solvents such as benzene, carbon tetrachloride, chloroform, carbon disulphide, ether, acetone, ethylene and methylene dichloride and in alcohol if boiled.

Tuads is a typical thiuram compound and is produced by oxidation of the dithiocarbamates. The starting substances are carbon disulphide and dimethylamine. Dimethylamine dimethyl thiocarbamate is oxidized to tetra-methyl thiuram disulphide.

Tuads is a heavy sulphide carrying body and in most cases can be used as an accelerator without the additions of large amounts of sulphur. Tuads burns with a blue-yellow flame producing sulphur dioxide and nitro bodies. The amount of Tuads used is so small that the toxicity is practically nil. In industry, substances which are toxic manifest themselves in very definite ways.

1. Production of a dermatitis on exposed areas which distinguish it from many skin diseases.
2. Production of coryza, conjunctivitis and throat irritations.
3. Nausea and gastro-intestinal symptoms especially in volatile compounds.
4. Kidneys often show irritations.
5. If the substances are volatile they may produce vertigo, such as benzene carbon tetrachloride, carbon monoxide and aromatic solvents.
6. Excretion of some of the substances either as such or its components in the urine or stools.

In many cases it is a question of elimination for diagnosis; for example, an individual who has some exposure to benzene may develop a vertigo, but after examination it may be found that his vertigo is due to some biliary disturbance and not to benzene. Many skin diseases are diagnosed as industrial dermatoses by mistake.

In our work on Tuads or any other compound we start with the chemical and physical nature of the compound. It must be determined whether the substance is soluble in any of the body fluids or whether there is a possibility of skin absorption. Any substance which is insoluble in the body fluids that has physical properties of a solid is non-toxic. This is not true with liquids and semi-liquids.

Some solids are more or less unstable and oxidize on exposure and produce some toxic by-products.

Tuads is a stable compound and does not oxidize under ordinary conditions. It is insoluble in the body fluids and its sulphur is not liberated except under conditions different from those existing in the body. It is neutral in reaction and is not soluble in weak acids or alkalies. It is prepared from dimethylamine which is somewhat toxic but the reaction is complete and if Tuads is pure there should not be any dimethylamine in the end product.

In some cases in testing out substances on animals the true irritative nature of the substances is not determined as many substances produce a dermatitis in humans and are inert on animals. For example, phenyl-beta napthylamine after numerous applications to animals did not show a dermatitis but when applied to humans did produce a very definite irritation. In our experiments with Tuads, both animals and humans were used.

Guinea pigs were shaved and Tuads applied to the skin in acetone solution for many consecutive days. The results were negative. The patch method was used on human skin. Tuads were placed on gauze squares 1" in area, placed on the arms and covered entirely with adhesive tape. These were left for 24 and 48 hours and removed. There was no indication of any irritation. One individual is very susceptible to skin reactions and in this test the results were negative. These tests were made with pure Tuads. One should be sure as to the purity of the Tuads for there may be some dimethylammonium dimethyl dithiocarbamate present which is toxic and irritant to a certain degree.

The conclusion to be drawn from these experiments is that Tuads is non-irritative and non-toxic as ordinarily used in the rubber industry and when considered as a single substance of a high degree of purity. In some instances Tuads is used in conjunction with phenyl-beta napthylamine and a dermatitis may develop. It is possible also in the manufacture of Tuads to get some toxic manifestations from the amine which is used. Individuals who have been working with Tuads itself have not shown any toxic symptoms of any kind. When a mixture containing Tuads, rubber, stearic acid, sulphur zinc salts, mercapto-benzothiazol, phenyl-beta napthylamine, carbon and moisture is heated many complex reactions take place. Some of the substances combine, some are oxidized, some are chemically inert and some "bloom out" of the rubber, chiefly sulphur, phenyl-beta napthylamine and mercapto-benzol thiazol. Articles which are intended for personal wear which have a bloom should not be placed next to the skin.

The use of any powder whether it is Tuads or soapstone or lampblack should be handled with care not from the toxic hazard but from the dust hazard standpoint. Tuads if taken into the gastro-intestinal system in large doses produces a nausea and a slight enteritis, but this does not happen in industrial processes.

If Tuads is burned it produces a blue flame characteristic of sulphur and produces sulphur dioxide and nitro-sulphur compounds which are irritating to the mucous membranes of the eyes, nose and throat. However, this does not happen in industrial uses.

Conclusions

In conclusion we may say that Tuads as used in the rubber industry is not toxic. Men working with Tuads have not shown any effect from its use. Experiments on guinea pigs have not produced any toxic symptoms and repeated applications to the skin has not produced a dermatitis.

Using the patch method of determining the susceptibility of the human skin to substances has not shown any dermatitis after 24 and 48 hours exposure.

If dermatitis develops from rubber one should investigate the other possibilities present, chief of which is phenyl-beta napthylamine if it is used or some intermediary product. The intermediate product may, in the case of Tuads which is not pure, be dimethylammonium dimethyl dithio-carbamate which is moderately toxic and irritative. This toxicity is decreased in the production of Tuads by

further sulphonation of this compound. If you have trouble with skin irritation or gastro-intestinal upsets, test the purity of Tuads and check on the other compounds which are used in combination with it. Keep in mind that 2 to 3% of normal individuals are susceptible to most all chemical compounds, that persons with acidosis are more susceptible than normal and that hyperthyroidism often plays an important part in this susceptibility. Before any compound is used it should be studied chemically and tested physiologically. These tests should be made both on animals and humans and under the conditions in which they are used.

Congress Chooses Rubber Flooring

WHEN Congress convenes next month, there will be lively interest in the selection of a new Speaker to succeed the late Nicholas Longworth. Whether or not the choice will be Mr. Garner or one of his Republican colleagues, the fact remains that there is a surprise in store for these distinguished gentlemen. During their absence for the past several months, the famous House Chamber has been redecorated. Chief among the changes is the replacement of the carpet with a new rubber-marble tile floor over the entire arena. This type of flooring was chosen to meet the demand for a decorative flooring in subdued tones to harmonize with its surroundings.

There were other considerations, however, which are more important than its rich appearance. Principal among these are cleanliness and safety. The new rubber-marble

Laying the Rubber Flooring in the Chamber of the House of Representatives

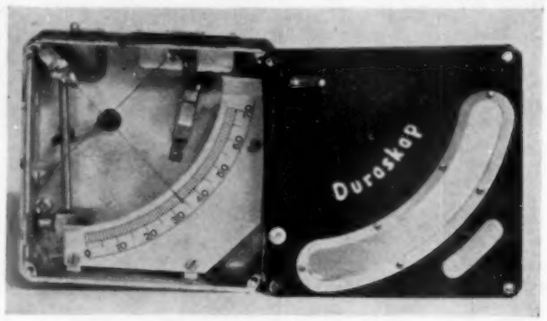
tile floor with its glossy surface can be kept spotlessly clean and there are no tacks to come loose and cause the carpet to wrinkle and trip the gentlemen from the various states during the heat of a debate.

The colors are a marbleized combination of royal blue and French grey laid in individual squares, firmly cemented over a canvas lining securely fastened to the sub-floor. The firm of David E. Kennedy, Inc., New York City, N. Y., was selected for this important installation.

New Hardness Tester

A NEW instrument adapted to use in a wide variety of industries has just been placed on the market in the United States and Canada by the R. Y. Ferner Company, Investment Building, Washington, D. C. It is called the "Duroskop" and is primarily a hardness tester but one depending on the dynamic principle of a falling pendulum rather than on static tests of the usual hardness instrument. It is therefore also a measure of resilience and can be applied to such materials as rubber, vulcanized fiber, plastic products, linoleum and similar floor coverings. The instrument has been in use in Germany and other European countries for four years and was recently patented in the United States.

The readings with this instrument are made very simply and require only a few seconds. The piece to be tested if small or thin is held or clamped firmly against a large



New "Duroskop" Hardness Tester

block of metal or in some cases may be held securely in a vise or other suitable clamping device. The instrument, which has a case 4⅛" x 4⅛" x 1¼" in size, is held with the left vertical edge against the piece, with the hole in the side, through which the pendulum is to strike, placed over the spot to be tested. The pendulum is released by pressure of a pin on the back of the instrument, and in falling strikes against the material through the opening and rebounds, carrying with it, to the highest point on the scale to which it rises, a light pointer. This pointer is under a slight pressure from a wire stretched across it which holds it lightly against the edge of the scale so that the pointer is left at and held in place at the highest point of the rebound.

Readings of the instrument on adjacent spots should not differ by more than half a degree unless there is a definite difference between the two points.

An important advantage in the instrument lies in its portability in that it can be taken to the pieces to be tested instead of bringing quantities of pieces or samples to the instrument. For this reason also it is not necessary to take samples and any point in the whole piece can readily be checked. It can be used in the field by traveling inspectors, or in the reasearch laboratory.

The instrument weighs less than 13 ounces and can readily be slipped in a man's coat pocket. It is supplied in a polished dove tailed wooden box with hinged cover.

Rubber Plantings in Siam

THE planting of rubber in Siam on a large scale is of comparatively recent occurrence. The climate in most parts of the country is unsuitable for the the cultivation of rubber owing to the low rainfall and long dry period in between the rains, but the conditions are favorable over a small area in South-Eastern Siam near the coast, as well as in the southern part of Peninsular Siam. There are a few registered companies owning rubber plantations, but for the most part the blocks of trees are small and owned by individuals. One of the largest and most important of these is an estate in Chantaburi, where there are trees reputed to be 20 years old. In 1929 it was producing 600 piculs of rubber a month.

According to the Department of Commerce reports, the total area in tapping in 1929 was 103,216 acres, and the export of rubber (excluding rubber waste) was 5,027,159 kilos. If the amount exported represents the whole production, the yield per acre is only about 110 pounds.

Inspection of Rubber Machinery and Equipment for Accident Prevention*

By W. L. SCHNEIDER
Safety Director, The B. F. Goodrich Co., Akron, O.

THE principal reason for a definite and periodic inspection of machinery and equipment is to detect faults not ordinarily observed and to insure safe operation of such machinery and equipment within reasonable limits. Stopping limits of prime movers and their appurtenances are closely associated with the condition in which a machine is maintained. To guard against machine hour loss and to insure quality production, it is essential in some cases to inspect machinery and equipment while in motion, to determine by sound and fee whether or not it is in good condition. In such cases, from the viewpoint of safety, the method of inspection and control exercized is most important and requires careful and logical planning. In such cases, the inspector must be carefully trained to avoid coming in contact with moving parts, and adhere strictly to all rules and regulations covering machinery and equipment of such special nature upon which he is required to work.

Wherever possible, new equipment, if carefully designed, provides for greater and safer accessibility and often obviates the necessity for working on machinery in motion. Where machinery is not in motion, naturally little hazard is encountered and therefore shut-down periods are decidedly advantageous in planning inspections and repairs.

In shut-down periods or when machines are at rest, however, due precaution should be used in locking out main or auxiliary switches if independent, or by the substitution of warning cards hung on switch handles otherwise. These cards should generally contain the name of the mechanic or inspector and his payroll number.

Wherever possible, centralized control of machinery, tools and equipment is decidedly advantageous for the reason that a unified control eliminates divided responsibility.

Delegating Responsibility

The question of the part the safety division plays in this subject and always will be debatable, however, from the viewpoint of experience the method must, as in many other cases, lend itself largely to the facilities provided for in each case.

It is the writer's personal opinion that more effective safety inspection can be accomplished by delegating such responsibility to the field engineer and production groups, the safety department always receiving reports of such inspections and sitting in as may be necessary in the discussion and conference of the subjects at hand.

At Goodrich our safety meetings are partially taken up in an inspection of machinery and equipment in which the department to be inspected is not assigned until conference time and the safety director and all general foremen of the division themselves make the inspection, and the findings are a part of the minutes of the safety meeting. The follow-up is then made by the foremen involved and checked by the safety director.

Time will not permit of the detail in such procedure as this would involve four divisions employing over 10,000 employes, in which workers in operation produce 32,000 different rubber articles, representing 1,000 different rubber products; so it is evident that the extent of the safety problem of inspection is readily apparent. Add to that, pertinent facts about physical property and the background is complete—65 separate buildings varying from one to ten stories in height, providing a working area of over six million square feet, 60 elevators, 7 substations of which 3 are main stations controlling incoming 23,000 volt power for 3,200 motors with capacity up to 1,000 H. P.; 32,000 machines; 12,000 shears and 15,000 knives. All motors, 150 H. P. and above, are operated at 2,200 volts. I will endeavor, however, to list some of the important machinery and equipment involving safety inspection:

Rubber Machinery and Equipment Requiring Safety Inspection

1. Centralized control—tools and appliances.
2. Small tools—wrenches, punches, drills, chisels, files, reamers, cutters, hammers, abrasive wheels, etc.
3. Blow torches.
4. Electric and air drills.
5. Oxacetylene and high pressure gas guages, regulators and apparatus. Once each month—tagged and labeled.
6. Steam gauges.
7. Relief Valves.
8. Recording instruments.
9. Ladder control and inspection (assigned ladders).
10. Chain blocks.
11. Chains and slings.
12. Ropes.
13. Air and electric hoists.
14. Trucks (hand) also (gooseneck) hand lift.
15. Industrial tractors.
16. Industrial trucks.
17. Vulcanizers and pressure vessels—external and internal—interlocks, gauges, regulators, telltales, safety relief valves, doors, lugs, bolts and eye bolts, (guards) (anneal).
18. Conveyors—horizontal and vertical—safety stops, latches, chains, hooks, guards.
19. Power and foot presses.
20. Windups.
21. Power shears.
22. Circular shears.
23. Bias cutters.
24. Mold slings.
25. Safety latches on windups.
26. Mill and calenders.
28. Roll drift.
29. Trip bars or cables.
30. Switches.
31. Breakers.
32. Aprons.
33. Mill guides.
34. Knives.
35. Adjusting screws.
36. Adjusting bars.
37. Scraper bars.
38. Clutches.
39. Solonoid switches.
40. Brake weights.
41. Bands and linings.
42. Pilot lights.
43. Shells and bars.
44. Windup clutches.
45. Reels.
46. Tables, benches.
47. Bars.
48. Pipe racks.
49. Belting windups.
50. Louden tracks.
51. Cranes.
52. Tire machines, dynamic brakes, foot switches, stitchers and applying bars, etc.
53. Forming boxes or expanders.
54. Tire wrappers.
55. Tubing machines.
56. Bias cutters.
57. Chutes—compound (sulphur).
58. Heating kettles (compounds).
59. Banbury mixers (guards and lock switches).
60. Tin rollers (safety stop and guards).
62. Hose machines.
63. Elevators—gates and safety appliances.
64. Belts—hooks and plies.
65. Motors.
66. Grounds—motors and table tops, churns, etc.
67. Fan blades.
68. Extension cords and vapor-proof lights.

*Paper presented before the Rubber Section, 20th Annual Safety Congress, Chicago, Ill. Oct. 15, 1931.

EDITORIAL COMMENT

Stabilizing Industry

MUCH food for thought on the part of the rubber manufacturing industry can be gleaned from the recent remarks of Gerard Swope, president of the General Electric Company, delivered before the Academy of Political Sciences. His plan for the stabilization of industry has already been given considerable publicity. When efforts to modify the anti-trust laws are made in the coming sessions of Congress the rubber manufacturers should give such modifications as will promote a stabilization of the industry their earnest support.

Discussing the dissemination by trade associations of knowledge regarding trade practices and ethics, and the standardization of products, Mr. Swope quoted an opinion of the Supreme Court, handed down in 1925, which held that "the natural effect of the acquisition of wider and more scientific knowledge of business," could hardly be deemed a restraint of commerce, or at least not an unreasonable restraint, "or in any respect unlawful."

Mr. Swope added that be believed American industry has long since passed the point where trade associations would curtail production, causing increases in prices to the public, a fear expressed by some people. "What the industry would endeavor to do," he said, "would be to prevent over production, and would regard as an unfair competitor any member of such trade association who, knowing the consuming power of the public and the stocks on hand in the possession of all members of the association, nevertheless built up a large inventory, which later must be sold at reduced prices, quite regardless of cost. Such practices are unfair to the competitors themselves, and highly unfair to the labor employed; and such prices below cost for a brief period are of no lasting benefit to the consuming public."

Modification of the Sherman anti-trust law along the line recommended by the American Bar Association to remove the criminal aspects of the law and to allow companies to make agreements which would be filed with the Federal Trade Commission and the Department of Justice was one method suggested by Mr. Swope for encouraging companies to participate in the plan by joining their respective trade associations. Another method which he suggested was to allow participating companies to deduct from their federal taxes the sums which they contribute to employe welfare funds.

To those critics who expressed the belief that his plan would mean in reality putting the government in business, Mr. Swope made answer by pointing out that throughout the plan he had advocated "that the initiative be taken by the trade associations and not by the government." The government supervisory body, he declared, would act as a referee or umpire to interpret unfair competition between members, or if necessary to protect the welfare of the public by its interpretation of agreements filed with the Federal Trade Commission or its study of production and price trends.

"The public interest will be protected, it seems to me," Mr. Swope continued, "because the federal supervisory body will receive reports periodically showing the volume of shipments and the amount of merchandise on hand. They will also know the price at which the merchandise has been sold at retail and they will have filed with them the income statements of members of the trade association, prepared on a uniform basis.

"The volume of shipments will show whether production has been curtailed; the amount of merchandise on hand will show whether production is outrunning consumption or vice versa; the retail price of the article will show the price trend, and the analysis of income statements, made on a uniform basis, will show whether the profits of the corporation engaging in this business have increased or decreased. These factors, it seems to me, would give all the information necessary for a Federal supervisory body to adequately protect the public interest.

"If, as already suggested, Congress, by modifying and clarifying the Sherman law, encourages companies to join trade associations and offers inducement for such companies to stabilize employment, and these measures are approved and supported by public opinion, almost every company will join in this constructive endeavor and no compulsion will be necessary."

The RUBBER AGE

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

RUBBER COMPANY FORMED BY STAUFFER CHEMICAL

The Pacific Hard Rubber Company has been formed at Los Angeles, Cal., and a plant is now under construction for the manufacture of hard rubber battery containers. Ownership and control of the company is vested in the Stauffer Chemical Company, the arrangement providing an additional outlet for chemicals used in the production of reclaimed rubber and battery boxes.

The new company will also be closely associated with the United Rubber Corporation, of San Francisco, Cal. Officers of the company are John Stauffer, Jr., president; Herbert King, vice-president; and W. C. King, secretary-treasurer.

GARLOCK PACKING WILL PRODUCE BRAKE LINING

Marking its entrance into the brake lining field, the Garlock Packing Company, manufacturer of rubber and other packings at Palmyra, N. Y., has just introduced its 701 folded and molded brake lining for industrial service. This material is constructed of high quality asbestos cloth, impregnated with a special rubber compound, folded, molded and vulcanized under 2,000 pounds pressure. It has been developed for use in oil fields, sugar refineries, lumber mills, steel and tubing mills, paper mills, mines and all industries that employ machines which require brake lining.

The Garlock Packing Company was established in September, 1887, and throughout its 44 years of service it has made nothing but packings, extending its line until it now includes a packing for every purpose.

GOODYEAR'S TEST FLEET IN ARIZONA FOR WINTER

The 19-car tire testing fleet of the Goodyear Tire & Rubber Company arrived at Litchfield, Ariz., on November 2 for a six-month sojourn there, during which a 250,000-mile monthly schedule will be maintained. The motorcade included in addition to the 19 company cars and trucks, 35 personal cars of drivers, mechanics and technicians and their families, a total personnel on the trip of 97 individuals.

J. H. Greenleaf, who for 15 years has directed the activities of the tire testing fleet, carried a letter from Governor George White of Ohio to Governor Hunt of Arizona.

Chicopee Falls Plants Open

The Fisk Rubber Company, Chicopee Falls, Mass., re-opened November 2 with 1,600 workers on a five-day week after having been closed since October 16. The rubber sporting goods units of A. G. Spalding & Bros., also of Chicopee Falls, resumed operations the same day after a two-week shutdown for inventory.

Pioneer Rubber Aids Charity

The Pioneer Rubber Company, Willard, O., has announced that during the month of November it will give 2 per cent of the sales of its gas station in that city to charities. The proceeds will be turned over to the Associated Charities for poor relief this winter.

ALLBESTOS WILL OFFER MOLDED BRAKE LININGS

The Allbestos Corporation, which until now has made only woven brake lining, is introducing a molded lining under the name Red Knight. The new lining is featured by a red color, produced by the materials and oxides used in its manufacture, which is claimed to give it certain advantages in serviceability. A second innovation is the use of perforations to exhale or dissipate any gases generated, to prevent delamination, and to permit flexibility.

The lining contains 70 per cent of long fibre asbestos (a spinning grade), not over 10 per cent of rubber, with about 20 per cent of reinforcing and coefficient agencies.

NEW GOODYEAR AIRSHIP IS PLACED IN SERVICE

The Reliance, newest blimp of the Goodyear Tire & Rubber Company fleet, was completed early this month and named at the Akron Municipal Airport on November 6 by Mrs. J. B. Huber, wife of the chairman of the Akron Chamber of Commerce airport and aviation committee. Following the naming of the ship, Mrs. Huber, accompanied by Mrs. Fred Harpham, wife of the Goodyear vice-president, and other ladies, were taken for a flight.

Joined by the Defender and the Puritan, the Reliance went to Columbus the following day to participate in the festivities in connection with the Ohio State-Navy football game. P. W. Litchfield, Goodyear president, and Clifton Slusser, vice-president and factory manager, were among a group of company officials who accompanied the blimps to the football game.

RUBBER PRODUCTS SHOWN AT HOTEL EXPOSITION

A variety of rubber products and items containing rubber were exhibited in connection with the 16th National Hotel Exposition at the Grand Central Palace, New York City, from November 9 to 13. The Rex Rubber & Novelty Company, New York City, showed its line of balloons and rubber novelties for banquets and entertainments.

The Brockton Universal Machine Company, Brockton, Mass., had its Universal Glass Washer on display. This device consists of a heavy brass nickle plate base upon which are mounted metal arms bearing brushes of red rubber. The washer is placed in water, allowing the top to extend out of the water about two inches, and the glasses are placed over the brushes and pushed down, causing the brushes to twirl around.

R. B. Martie, Inc., New York City, as distributors in the metropolitan area, exhibited Sanicot mattress covers, both rubberized and uncoated, which slip over a mattress and are closed instantly with slide fasteners. Jarvis & Jarvis, Inc., Palmer, Mass., featured their hotel tray, dish and hand trucks with Permaflex rubber tires and their rubber bumpers for beds. The Faultless Caster Company, Evansville, Ind., showed its Noelting Faultless casters with Ruberex and Rockite wheels, including the type especially designed for use in the new Waldorf Astoria.

GOODRICH SUBSIDIARIES HAVE SALES CONFERENCE

The annual sales conference of subsidiary tire organizations of the B. F. Godrich Company was held from November 2 to 4 in the Mayflower Hotel, Akron, O. About 100 sales representatives from throughout the country attended.

H. E. Keller, sales manager of the subsidiary organizations, was in charge of the conference. He outlined the Miller, Hood, Diamond, Brunswick and Defiance plans.

Other speakers were E. H. Barder, general superintendent of the Goodrich tire division; F. H. Atkins, credit department; C. R. Mason, manager Goodrich adjustment department; E. P. Weckesser, tire and tube sales; A. L. Bowman, truck and bus tire sales; E. A. Schneider, accessories; William Sewall, Miller and Hood advertising; M. G. Huntington, Diamond and Defiance advertising; P. J. Kelly, manager Goodrich advertising department, and W. A. Johnson, Brunswick sales manager.

FENNER & BEANE MERGE WITH UNGERLEIDER & CO.

Fenner & Beane, prominent member of the Rubber Exchange of New York and of other commodity and security exchanges, will merge with Samuel Ungerleider & Company, member of the New York Stock Exchange and other exchanges, on December 1. The merger will create the second largest commission and brokerage house in the United States, and the name of the consolidated organization will be Fenner, Beane & Ungerleider.

John L. Julian, of Fenner & Beane, is president of the Rubber Exchange of New York, and Clifford C. Johnston, former head of the Johnston Rubber Company, became rubber consultant to Fenner & Beane last May.

H. HENTZ & CO. OBSERVE THEIR 75TH ANNIVERSARY

H. Hentz & Company, members of the Rubber Exchange of New York and other leading exchanges, observed the 75th anniversary of the founding of the firm on November 15. It was on that date in the year 1856 that Henry Hentz, then 22 years old, came to New York from Philadelphia and rented a small office at 5 Hanover street, becoming in only a few years an outstanding factor in the cotton business.

The firm branched out from its original specialization in cotton to take part in all leading commodity and security exchanges.

Keith Bon Leases Office

Keith Bon & Company, Inc., crude rubber brokers and members of the Rubber Exchange of New York, have leased the twenty-sixth floor at 99 Wall Street, New York City. The company is affiliated with the Anglo-French Trading Company, Ltd., of Singapore; Klentze & Company, of Hamburg, and Alcan & Cie., of Paris. Its offices are now at 44 Beaver Street, New York City.

Rubber Credit Men Meet

A joint dinner and entertainment of the Crude Rubber and Raw Material Groups of the New York Credit Men's Association was held at the Hotel Taft, New York City, on November 18. Officers of the Crude Rubber Group are E. S. Finch, chairman; J. A. Davey, vice-chairman; and F. C. Gens, secretary-treasurer.

Rubber Safety Men Meet

The executive committee of the Rubber Section, National Safety Council, met November 11 at the offices of the B. F. Goodrich Company in Akron, O. W. Dean Keefer, director of the Industrial Division of the National Safety Council, attended the session and assisted in drawing up plans for next year's safety work in the rubber companies. C. L. Hungerford, safety engineer of the Firestone Tire & Rubber Company, presided as general chairman of the Rubber Section.

Schwenk Safety Carboy Tilter

An improved carboy tilter, designed to prevent injuries from acid handling accidents and to enable one man to truck, drain, and otherwise handle carboys of liquids safely, is announced by the Schwenk Safety Device Corp., 27 Water Street, New York, N. Y.

The new equipment is an improvement in that the carboy is elevated into the tilter by levers. The operator does not directly lift the carboy, which often weighs 200 pounds or more. The cradle wherein the carboy box rests provides support on three sides and the bottom so that there is no danger of the bottle dropping through the box though the wood be in bad condition. Full control in pouring is had at all times regardless of the amount of the liquid in the carboy. Every drop of fluid can be drained from the bottle.

The unit has the approval of the various safety organizations.

Howard C. Harris

Howard C. Harris, lifelong resident of Summit County, died of heart disease at Tallmadge, O., on November 7 at the age of 56. He is survived by his four brothers, including Stanley W. Harris, president and general manager of the National Rubber Machinery Company.

Macy's Annual Balloon Parade

R. H. Macy & Company, New York City department store, will conduct its annual Thanksgiving Day parade through four miles of city streets with many new features this year. The giant balloons, built by the Goodyear Tire & Rubber Company, will include a dragon 197 feet long and inflated with 9,000 cubic feet of helium, a blue hippopotamus, a two-headed giant and numerous reproduction of comic sheet caricatures. The figures will later be released, together with 15,000 small rubber balloons.

Link-Belt Nets $618,522

The Link-Belt Company and subsidiaries report for the nine months ended September 30, 1931, a net profit of $618,522 after depreciation, taxes, etc., equal after preferred dividends to 59 cents a share on 709,177 no-par shares of common stock. This compares with $1,802,111, or $2.26 a share, in the first nine months of 1930.

AKRON BANKS COMPLETE PLAN OF CONSOLIDATION

The merger of the First-City Trust & Savings Bank and the Central Depositors Bank & Trust Company of Akron into a single institution with resources of $75,000,000 was consummated early this month by the vote of the stockholders. The new institution will be known as the First-Central Trust Company.

Among its directors are several men identified with the rubber industry, including S. G. Carkhuff, secretary of the Firestone Tire & Rubber Company; Harvey S. Firestone, Jr., vice-president of the Firestone Tire & Rubber Company; F. M. Harpham, vice-president of the Goodyear Tire & Rubber Company; P. W. Litchfield, president of the Goodyear Tire & Rubber Company; V. I. Montenyohl, treasurer of the B. F. Goodrich Company; William O'Neil, president of the General Tire & Rubber Company; and James D. Tew, president of the B. F. Goodrich Company.

NEW JERSEY ZINC EARNS $2,504,838 IN NINE MONTHS

The New Jersey Zinc Company reports for the nine months ended September 30, 1931, a net profit of $2,504,838 after taxes, depreciation, depletion and other charges, equal to $1.27 a share on 1,963,264 shares of stock. This compares with earnings of $4,140,036, or $2.11 a share, in the first three quarters of 1930.

For the quarter ended September 30 the company showed an income of $778,817, equivalent to 39 cents a share, as compared to $865,252, or 44 cents a share, in the preceding quarter and $1,050,880, or 53 cents a share, in the third quarter of last year.

Rubber Stocks Unchanged

Rubber company stocks closed little changed, Goodrich rallying fractionally and Goodyear and U. S. showing slight declines. Norwalk rallied briefly to a new high.

Closing prices of the stock issues of the principal companies in the industry on November 19, compared with the close on November 4 and with the high and low thus far reached in 1931, are shown in the following table:

	Last Price		—1931—	
	Nov. 19	Nov. 4	High	Low
Aetna	—	—	5	2
Ajax	—	—	½	¼
American Hard Rubber	—	—	35¼	30
Dayton "A"	—	—	—	—
Faultless	—	—	37	29
Firestone	—	14¾	21½	13
do. 6% pfd.	54	53	66½	50¼
Fisk	¼	⅜	⅞	¼
do. 1st pfd.	—	½	3	½
General	53½	—	140	50
do. pfd.	—	—	87½	75
Goodrich	7	6¾	20⅞	5
do. pfd.	21½	—	68	15
Goodyear	25½	26	52¾	16
do. 1st pfd.	—	—	91	58
India	—	10	13½	6
Intercontinental	—	—	4½	¼
Kelly-Springfield	1¾	1¾	3½	¾
do. 6% pfd.	26	—	45	10
Lee	—	2	4¾	1⅞
Mohawk	—	—	8	1¾
do. pfd.	—	—	35	25
Norwalk	1¼	1	2	½
Pirelli	—	—	39¾	26½
Raybestos-Manhattan	12½	—	29½	9½
Seiberling	—	5	10¾	4¼
do. pfd.	—	—	50	32
U. S. Rubber	6⅜	7¼	20⅝	5¼
do. pfd.	11⅞	12	36⅛	9⅝

New Rubber Goods

GOODRICH INTRODUCES COLORED WRINGER ROLL

A variegated rubber roll for clothes wringers is now being manufactured by the B. F. Goodrich Rubber Company. The new type roll is said to have longer life, from which it derives its name, Goodrich Longlife; to have greater resilience and to contain no layer of hard rubber.

The roll is made of the best live rubber with Agerite to prevent oxidation of the rubber. The rubber is attached to the steel shaft by the Goodrich Vulcalock process of uniting soft rubber directly to steel, thereby eliminating a layer of hard rubber and adding to the roll's resilience.

The variegation adds to the appearance of the roll and makes possible the matching of colors of the washer and its various parts and accessories, in addition to a safety factor whereby the wringer operator can quickly determine by sight if the roll is in motion. The rolls are manufactured in several colors.

NEW GOODYEAR METHOD FOR SPLICING TUBES

A new method of splicing automobile tire tubes in the manufacturing process, is announced by development engineers of the Goodyear Tire & Rubber Company.

With the new process, known as the patented Goodyear electric weld method and now in use in the production of all Goodyear tubes, the splicing is done by a machine which notches both ends of the tube and then places these ends together, knitting the raw ends in a strong union with pressure.

This is done before the tube is vulcanized or cured, and this welded splice is airtight at the completion of the splice. Then the whole tube goes through the vulcanizing or curing department and in the resultant even flow of the rubber all traces of the splice union are removed, making a perfectly smooth continuous tube.

R. M. A. OPENS CAMPAIGN FOR BETTER TIRE CARE

An educational campaign, directed toward the better care and maintenance of tires and having as its primary purpose the reduction in adjustment losses on the part of the tire manufacturing companies, will shortly be launched by the Rubber Manufacturers Association. The campaign will take the form of the distribution to member companies of the association of a series of three large posters, which in turn will be distributed to dealers and tire repair and service stations.

The posters are large, attractive 28 x 40 inch plaques, and illustrations depict the various causes of tire trouble and effective preventative measures. The posters are entitled "Causes of Rapid Tread Wear," "Causes of Fabric Breaks" and "Truck Tire Failures." A recent pamphlet issued by the association and entitled "Instructions for Removal and Application of Tires on Drop Center Rims," is also a part of the campaign.

Need experienced help? See page 180.

Latex Stocking Protector

Latex Rubber Products, Inc., which opened its factory at Akron, O., only this summer, is already finding an appreciable demand for its new rubber latex stocking protector designed to protect silk hosiery on rainy days. This novelty slips over the hose and fits over the foot, covering the entire instep. It is produced by new automatic machinery which eliminates the excessive cost of hand-dipping.

Wedg-Seal Container

Through the use of a rubber gasket, the Geuder, Paeschke & Frey Company, 1403 West St. Paul Avenue, Milwaukee, Wis., has developed a closure for its G. P. & F. Wedg-Seal container which is claimed to be safe, economical and efficient. This closure, according to the manufacturer, is easy to open when desired and easy to reseal in its original airtight condition, but in shipping service it only grips the harder as it is banged about.

As the cross-section shows, small lugs are used instead of cement to hold the rubber gasket in place. The container is adaptable to the shipment of paint, grease, lead, wax and numerous other materials.

Seiberling Duo-Tread Tire

The Seiberling Rubber Company, Akron, O., is now introducing its new Duo-Tread Air-Cooled tire as a companion to its Triple Tread casing announced six months ago. According to the manufacturer, the air cooling principle employed by these tires has conquered the effects of internationally generated heat, which burns up rubber, weakens ordinary tires and makes them wear out more rapidly. More than 100 holes which pierce the tread of this casing give it in

effect a second anti-skid tread below the first. Heat is expelled from the tread as the tire cushions against the road and closes the holes, while cool air is drawn in as the load is released and these holes expand. Thermocouple readings taken by the company show that tires under continuous runs generate such heat that their temperature rises to 200 degree Fahrenheit and to 230 degrees in the case of truck tires, but a temperature difference of as much as 36 degrees is said to have been shown when air-cooled tires were similarly tested.

Inner Tubes for Tom-Toms

Newspaper reports of ceremonial dances of the Apache Indians near Santa Fe, N. M., reveal that the tom-toms used are discarded paint kegs with rubber from old inner tubes stretched across the top for heads. Different tones are produced by varying the amount of water in the kegs.

Names in the News

E. BILLINGS, of Godfrey L. Cabot, Inc., Boston, Mass., has returned to his office after spending a week in Los Angeles and San Francisco earlier this month. He made the entire trip by airplane.

ROBERT Y. COPELAND, formerly director of planning and engineering for the Dominion Rubber Company, Ltd., Montreal, Que., has been transferred to that company's plant in Kitchener, Ont.

L. M. SIMPSON, general sales manager of the United States Rubber Company's tire department, and PAGE NOLL, sales manager for G & J tires, have returned from their recent hunting trip outside of Clark, S. D.

BERNARD M. ROBINSON, assistant secretary of the Firestone Tire & Rubber Company, SHELBY M. JETT, secretary of the B. F. Goodrich Company, and E. HELM, of the General Tire & Rubber Company, were elected trustees of the Akron Chamber of Commerce at the annual meeting of that body on November 24 at the Mayflower Hotel, Akron, O.

J. K. HAYES, statistician of the B. F. Goodrich Company for several years, has been appointed manager of the tire production and control division. Mr. Hayes went to Goodrich in 1919 after serving in the army and after a short time was made a special statistician. In 1921 he was placed in charge of stock regulation and a year later he entered the tire sales and merchandising department.

STANLEY R. MAUCK, formerly branch manager for the Firestone Tire & Rubber Company at Columbus, O., has been promoted to district manager with a territory that includes 30 Ohio counties and eight in West Virginia.

CARL SHIPMAN, superintendent of the Canadian Goodrich Company, Ltd., Kitchener, Ont., visited Akron early this month for a series of conferences. Mr. Shipman, who was formerly staff superintendent of the Goodrich tire division at Akron, has been at the Canadian factory for three years.

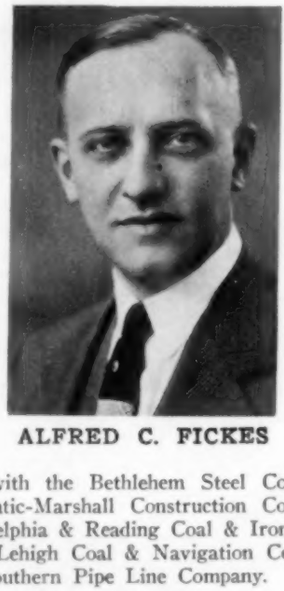
FRANK GABLE, chief engineer of the Firestone Tire & Rubber Company, addressed the 18th annual convention of the Ohio State Association of Dyers and Cleaners at the Portage Hotel, Akron, O. Delegates to the convention visited the dirigible hangar of the Goodyear-Zeppelin Corporation and the factory of the General Tire & Rubber Company.

DR. M. S. RICE of Detroit addressed the first meeting this season of the management group of the B. F. Goodrich Company, held November 13 at Polsky's Dining Room, Akron, O. This season's series of meetings will be held monthly and it is planned to have several outside speakers as well as a number of Goodrich officials.

ALFRED C. FICKES HEADS BIGGS BOILER CO. SALES

Alfred C. Fickes has assumed the duties of his new post as general sales manager of the Biggs Boiler Works Company, Akron, O., manufacturers of vulcanizers, tanks and other equipment for rubber factories. Mr. Fickes comes from the Lancaster Iron Works, Lancaster, Pa., for which organization he has been acting as general sales manager for the last eight years. He joined the Lancaster Iron Works in 1915 as chief engineer.

Mr. Fickes had a wide experience in the steel industry, having been previously associated as a mechanical and structural engineer with the Bethlehem Steel Company, McClintic-Marshall Construction Company, Philadelphia & Reading Coal & Iron Company, Lehigh Coal & Navigation Company and Southern Pipe Line Company.



ALFRED C. FICKES

FRANK A. SEIBERLING, president of the Seiberling Rubber Company, addressed a large group of tire dealers at Atlanta, Ga., on November 4 in the course of his 19,000-mile tour of the country which will not end until just before Christmas. While at Atlanta, Mr. Seiberling digressed from the tire business to predict that Newton D. Baker will be the Democratic nominee for the Presidency next year.

J. W. THOMAS, executive vice-president of the Firestone Tire & Rubber Company, spent the end of last month and the early part of this month in an inspection visit to the company's factories at Los Angeles, Cal. While on the coast, Mr. Thomas predicted that a revival of business will bring a large number of new branch factories of all industries to California.

C. W. SEIBERLING, vice-president of the Seiberling Rubber Company and president of the Akron Chapter, National Aeronautical Association, will be toastmaster at the University Club "Aviation Night" dinner to be held December 2 at Akron. B. J. BROOKS, of the B. F. Goodrich Company, is in charge of arrangements for the affair.

MAURICE SALLE, president, and CHARLES A. VIRIOT, vice-president of Ets Flertex, French automobile accessory manufacturing company, visited the plant of the Dayton Rubber Manufacturing Company, Dayton, O., early this month. They conferred with J. A. MACMILLAN, Dayton president, and other company officials with reference to introducing certain Dayton products to France.

NELT BARR, president of the Barr Rubber Products Company, Sandusky, O., was elected to the office of city commissioner in Sandusky for a term of four years at the local elections on November 3.

T. N. POCKMAN, assistant to the director of advertising of the United States Rubber Company, who has been seriously ill for several months, has gone to Phoenix, Ariz., for the remainder of his period of convalescence.

G. S. WHITBY, director of the Division of Chemistry, National Research Council, Ottawa, was given the honorary degree of doctor of laws by Mount Allison University, Sackville, N. B., on October 21 at the same time that the university dedicated its new science building. Dr. Whitby is well known for his work in rubber chemistry and technology.

W. W. MARTIN, director general of the Societe Francaise B. F. Goodrich, Colombes, France, and SIR WALROND SINCLAIR, managing director of the British Goodrich Company, Ltd., Leyland, England, visited Akron on November 7 and 8 to confer with V. I. MONTENYOHL, executive vice-president of the International B. F. Goodrich Company.

RUSSELL BOARDMAN and JOHN POLANDO, makers of the world's longest flight from New York to Turkey, were visitors to Akron on November 9, accompanied by HARRY A. HUSTED, Cleveland financier and rubber steering wheel inventor. At Akron they conferred with officials of the B. F. Goodrich Company and inspected the experimental aviation departments of the Goodrich factory.

ARTHUR B. PURVIS has been elected president of the Dunlop Tire & Rubber Goods Company, Ltd., to succeed the Hon. E. B. Ryckman, who resigned from that office upon his appointment as Minister of National Revenue. Mr. Purvis also is president and managing director of Candian Industries, Ltd., which has a large interest in the Canadian Dunlop company.

Rubber News Around the World

MAXWELL AND GAISMAN ARGUE ON ROAD COSTS

L. Gaisman, of the Hooley Hill Rubber & Chemical Company, Ltd., developer of the Gaisman rubber paving block, and Sir George Maxwell, chairman of the Senegat Rubber Estate, Ltd., and well known in the plantation industry, have in the past few weeks engaged in a controversy on the cost of rubber roadways through the medium of letters to the London *Times*.

Sir George Maxwell's statement at the Senegat Estate annual meeting October 21 that hope for aid in the present situation from rubber roadways was futile inasmuch as a mile of rubber roadway of moderate width would cost £90,000 was promptly protested by Mr. Gaisman. A mile of rubber roadway 10 yards wide "would cost £44,000, and not £90,000, on the basis of rubber at 6d per pound," he stated. Mr. Gaisman also argued that the value of the crude rubber in a mile of road at about £5,000 would bear a ratio to the total cost that would compare favorably to the relation of crude rubber costs to the selling price of an automobile tire.

Sir George responded on November 3 by quoting the report of experts that the cost of the block prepared by the company with which Mr. Gaisman is associated is £4 10s per square yard laid without foundation. "For a road a mile long and of the very moderate width of 36 feet only this works out at £95,040 a mile," he figured. "On these figures, supported by such authorities, the ratio of the cost of the road to the cost of the rubber employed is preposterous."

I. R. I. PLANS MEETINGS WITH VARIED PAPERS

Members of the Midland Section of the Institution of the Rubber Industry will meet December 3 at the Grand Hotel, Birmingham, to hear a paper by F. D. Ascoli on "The Scientific and Economic Development of the Rubber Plantation Industry." At the session of the West of England Section at the George Hotel, Trowbridge, on December 2, F. H. Cotton will speak on "The Manufacture of Compounding Ingredients."

The Manchester and District Section will have its next meeting at the Engineers' Club, Manchester, on December 7. At that time E. H. Wallace will discuss "The Flat Curing Curve and Its Application to the 4-Ply Cord Tire and Other Things."

Baldwin Leases Canadian Plant

The Baldwin Rubber Company, Pontiac, Mich., has leased a factory building at Orillia, Ont., for the manufacture of its products for the Canadian market. The plant will be equipped for rubber goods manufacturing at a cost of $150,000.

Exchange Membership Sold

The membership of Ralph Midwood in the Ruber Exchange of New York, Inc., has been sold to Timothy P. Brosnan, of Thomson & McKinnon, for $1,500. This compares with the last official transaction of $1,400.

Tire Fabric Exports High

Tire fabric exports in September gained sharply, but the total for the first nine months of 1931 still remains below that for the same pereiod of last year. Cord fabric exported in September totaled 148,820 square yards, valued at $44,340, as against September, 1930, shipments of 19,610 square yards, worth $6,047. Other tire fabrics were shipped to the amount of 76,334 square yards, worth $12,787, as against 19,815 square yards, worth $8,473, in the same month last year.

BATA SHOE COMPANY IS REGISTERED IN AFRICA

Much uncertainty has been caused among the shoe manufacturers, wholesalers, and retailers of the Union of South Africa as a result of the registration, on August 26, of the Bata Shoe Co. (Ltd.), a branch of the large Czechoslovak boot and shoe interests. The head office of the new firm is to be in Johannesburg.

The articles of association mention the manufacture of shoes and a number of other objects, but, at present, there seems to be no prospect of a factory being established in the Union.

During the past several years the Bata interests have succeeded in establishing their products—particularly their line of cheap women's shoes—in practically all of the more important centers of the Union, much to the dismay and objection of domestic manufacturers, who find these products almost beyond the class of competition.

AID TO UNEMPLOYED

THE RUBBER AGE will publish, *without any cost*, classified advertisements from readers to be inserted in the "Positions Wanted" column. If you are unemployed and have had experience in the rubber industry in any capacity—chemist, engineer, production, sales, office, executive—just send your advertisement and it will be inserted free in two successive issues. A box number will be assigned to you and all replies will be forwarded immediately by first class mail. To conserve space try to limit your copy to 40 words.

Take advantage of this offer now; send your copy today. Address:

Classified Dept.,
THE RUBBER AGE,
250 West 57th St., New York City

FRENCH AUTOMOTIVE MEN VISIT GOODRICH PLANTS

A group of French automotive leaders, accompanied by members of the engineering department of the Chrysler Corporation, visited the factories of the B. F. Goodrich Company at Akron late last month. Motion pictures of the pneumatic-tired cars used on French railways were shown to Goodrich officials after the Akron plant had been inspected by the visitors.

The visiting group included Julien Citroen, leading French car manufacturer; Jean Bourdon, son-in-law of the late Andre Michelin; Jules Guillon, works manager of Citroen; Marcel Salle, owner of the Flertex Brake Lining Company; R. K. Lee and W. J. McCourtney of Chrysler.

Record Rubber Cargo

The liner Phemius of the Booth American Shipping Corporation arrived at Brooklyn, N. Y., on November 16 with the largest cargo of crude rubber brought into the Port of New York in a single ship in several years. Bales and cases of smoked sheets, crepe and other varieties numbered 66,061, making a total of approximately 7,000 tons of the commodity, in addition to several drums of liquid latex. The value of the cargo was estimated at close to $800,000 at present low prices.

Let me take care of your
CHEMICAL WORK
and
MANUFACTURING PROBLEMS
on a monthly fee basis.

FREDERICK J. MAYWALD
Rubber Chemist
305 Hoboken Road
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Consulting Rubber Technologist

PRACTICAL

Twenty years' experience with the largest and most successful companies in the country

Physical and Chemical Testing
Special facilities for abrasion and quick age tests

Expert Advice to Correct Factory Trouble

New Processes and Formulas Developed

R. R. Olin Laboratories
P. O. Box 372, AKRON, OHIO
Telephones: Sherwood 3724; Franklin 8551

CLASSIFIED ADVERTISING

Five cents a word, minimum charge $2.00, payable in advance.
Address replies to Box Numbers.
THE RUBBER AGE
250 West 57th St., New York City

POSITIONS WANTED

RUBBER CHEMIST, graduate chemical engineed, 23 years old, single. Two years' experience in rubber clothing, automotive materials, friction and adhesive tapes. Some experience in artificial leather and fire-proof lacquers. Address Box 626.

COST ACCOUNTANT, experienced in standard and estimated costs on mechanical goods. Have method for control of labor variation. Also familiar with manufacturing methods of mechanical items. Eight years' experience in rubber industry. Address Box 627.

MECHANICAL ENGINEER, 46, twenty-five years' experience with equipment for transmission of power and design special machinery; also has several patented machines to his credit, one in the rubber industry. Highest references. Address Box 628.

FABRIC TECHNICIAN, 15 years' experience in fabric testing, inspection, analysis and development work on tires, mechanicals and accessories. Also factory control work on rubber deposits on fabric, calender stretch, etc. Moderate salary where future offered. Satisfactory references. Address Box 629.

SALES PROMOTION, Advertising and Sales Executive, experience hiring and training salesmen, directing sales promotion and advertising departments, good knowledge conditions in industry, construction, merchandising, etc. Highest references, reasonable ideas on salary, available immediately. Address Box 630, THE RUBBER AGE.

TECHNICAL AND PRACTICAL EXECUTIVE, a victim of the times whose services are on the bargain counter. 15 years' experience. What have you? If I can't handle your proposition and make you money, I will tell you. Address Box 631, THE RUBBER AGE.

MAN, 36 years old, good education and business background, 12 years' experience in manufacturing, merchandising and selling mechanical rubber products, desires connection where diligence and cooperation are required. Address Box 632.

RUBBER TECHNOLOGIST, B.S., age 32, eight years' experience in manufacture of druggist sundries; factory control and development; available immediately. Box 634.

PUBLICITY AND SALES Promotion man or Advertising Manager—Wide experience in rubber and allied industries. Has also carried out considerable market research work. Can take entire charge of department. Expert knowledge of printing and direct mail. Moderate salary or part time on fee basis. Address Box 635, THE RUBBER AGE.

SALESMAN, 38 years old, 10 years' experience calling on the rubber trade, willing to travel. Address Box 637.

PURCHASING AGENT, 38 years old, 10 years' experience buying mill supplies. Address Box 638, THE RUBBER AGE.

FABRIC ANALYST—Textile school graduate, 9 years' experience in fabrics. Capable of setting up specifications and developing. Know manufacture and present prices. Able to take charge of inspection department and know reasonable tolerances to allow. Will go anywhere. Address Box 636, THE RUBBER AGE.

ENGINEER—University technical education. Business and management training. 12 years' design, installation, maintenance and construction rubber machinery. 4 years' industrial layouts, costs, safety, employment, development, production and organization work. Executive training and ability. Age 38, married. Any locaiton. Address Box 640, THE RUBBER AGE.

PRACTICAL MAN with years of experience in quarter lining for shoe trade, hospital sheeting, calender, mill room, curing and spreader. Will take charge of any or all departments. Unemployed, will accept any position at a living wage. Married. Best of references. Address Box 615.

MECHANICAL ENGINEER, 37, seeks affiliation in either production or engineering department of a rubber manufacturer. Twelve years' experience in executive work in rubber manufacture. Eager to obtain temporary or permanent connection, salary secondary to opportunity. Address Box 618.

SUPERINTENDENT OR ASSISTANT—12 years' experience tires and mechanicals. Rubber technology Akron University. Development, control and production. Can manufacture oil, acid and electric proof rubber substitute. Now in California. Address Box 619.

RUBBER ENGINEER and factory executive is available for an immediate connection. Fully experienced in managing a plant and sales of a medium sized company. Have sales outlet for mechanicals at a profit. Have operated my own plant for the past three years. Address Box 620.

ENGINEER, 28, belting, hose and mechanical rubber experience, also brake lining testing, plant engineering and piping work. Address Box 621.

TIME STUDY ENGINEER with 15 years' experience in the rubber industry, 6 years' installing labor standards, will accept any position and will go anywhere. References furnished. Address Box 622.

FACTORY EXECUTIVE—Thoroughly familiar with the production of canvas and waterproof footwear; 20 years' practical experience in all departments. Dependable and adaptable. Is now available for immediate connection. Moderate salary where good future is offered. Address Box 623.

SALES-PERSONNEL EXECUTIVE; college graduate, 1926; married; has held good positions in planning, time-study, and personnel departments. Experience in footwear and mechanical plants. Wishes position in personnel or sales department. Address Box 624.

CHEMICAL ENGINEER. Experienced in handling and using latex. Over 12 years in development department of one of largest rubber companies. Age 38. Available immediately. Address Box 625.

HELP WANTED

TWO COMPOUNDER-CHEMISTS. One experienced with footwear, sheeting, drug sundries, etc. Other with tires and tubes. In reply give age, references, experience, salary, etc. Address Box 639, THE RUBBER AGE.

WANTED—Man familiar with every detail of lining barrels with rubber. Must know proper formulae, compounding and methods of application. In reply state age, references, experience and salary expected. Address Box 616, THE RUBBER AGE.

SUPERINTENDENT wanted for Canada, fully experienced in the manufacture of all types of rubber covered wire and cable, extruding machines used. Address Box 617, THE RUBBER AGE.

MACHINERY FOR SALE

FACTORY REBUILT Slitting and Roll-Winding Machine. CAMACHINE 8 Model 20 for rubber goods manufacturers. Greatly reduced price. Rebuilt practically as good as new. Provides for inserting new liner into rewound rolls, also for removing old liner if required. Address Box 604, THE RUBBER AGE.

EQUIPMENT WANTED

WANTED—Laboratory mill and light thirty-six or forty inch mill with or without motor. Also eighteen inch screw press. Address Box 633, THE RUBBER AGE.

SURPLUS RAW MATERIALS

WE PURCHASE surplus and discontinued stocks of Chemicals, Pigments, Accelerators, Solvents and Raw Materials, regardless of quality or condition. Send us a complete list of such dead stocks, whereupon we will make you a cash offer.

BARCLAY CHEMICAL COMPANY
154 Chambers Street, New York City

CASH FOR YOUR SURPLUS AND CLOSE OUT.—Rubber Goods, Chemicals, Colors, Pigments, Oils, Waxes, Glues, Accelerators, Metals. Any quanity. Any condition. Also Wastes, By-Products, Residues of all kinds.

CHEMICAL SERVICE CORP.,
36 Park Row, New York, N. Y.

LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, NOVEMBER 19, 1931

Crude Rubber

THE market for crude rubber rose briefly above the five-cent level during the early days of the fortnight at the time that other commodities were rising. Speculative buying and short covering were stimulated by the showing made in grain, cotton, metals and securities.

When the governor of the Netherlands East Indies was quoted as denying the practicability of restriction plans, however, the market abruptly subsided to its former level. The statistical position of the commodity has been none too favorable, with stocks increasing on every side.

On November 17, one of the largest single transactions in the history of the Rubber Exchange took place when a dealer bought 500 tons of rubber for March delivery from a trade broker at the price of 4.90 cents a pound. This caused a brief rally, but the advance failed to hold.

Prices quoted on the New York outside market at the close November 19 follow:

Plantations—			
Ribbed Smoked Sheets—			
Spot-Nov.		.04⅝@	.04¾
December		.04⅝@	.04¾
Jan.-Mar.		— @	.04⅞
First Latex, crepe spot		.04⅞@	.05
Amber Crepe, No. 2		.04⅝@	.04½
Amber Crepe, No. 3		— @	.04⅝
Amber Crepe, No. 4		.04¼@	.04⅝
Brown Crepe, Clean thin		— @	.04⅝
Brown Crepe, rolled		.04 @	.04⅛
Liquid Latex, per gal.		.70 @	.80
Paras—			
Up-river, fine		— @	.05¾
Up-river, coarse		Nominal	
Acre Bolivian, fine		— @	.06
Caucho Ball, Upper		.03 @	—
Centrals—			
Central scrap		.04 @	—
Esmeraldas		.04 @	—
Balata—			
Block, Ciudad		— @	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers			
Spot-Nov.		2⅞@	3d
December		— @	3d
Jan.-Mar.		3 @	3 1/16d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers			
Spot		2⅝@	2¾d

Daily closing prices and sales on the Rubber Exchange of New York are given in the table below:

Reclaimed Rubber

Reclaimed rubber has continued weak in sympathy with the low level of the crude commodity. Official figures for October place consumption at 8,126 long tons, the lowest in several years although equal to 36.6 per cent of the amount of crude rubber used in that month. Production is given as 9,482 long tons and stocks on October 31 as 17,741 long tons. Late price quotations for the various grades of reclaim were as follows:

High Tensile			
Super-Reclaim Black	lb.	.06 @	.06¼
High Tensile Red	lb.	.06¼@	.06½
Shoe			
Unwashed	lb.	.05¼@	.05½
Washed	lb.	.06½@	.06¾
Tube			
No. 1 (Floating)	lb.	.07½@	.08
No. 2 (Compounded)	lb.	.06 @	.06½
Tires			
Black	lb.	.04¾@	.05¼
Black, selected tires	lb.	.05 @	.05¼
Dark Gray	lb.	.06 @	.06¼
Light Gray	lb.	.06¼@	.06½
White	lb.	.07½@	.07⅝
Truck, Heavy Gravity	lb.	.06 @	.06¼
Truck, Light Gravity	lb.	.06¼@	.06½
Miscellaneous			
Mechanical blends	lb.	.03¾@	.04¼

Scrap Rubber

The low rate of production and consumption of reclaimed rubber tended to depress the market for rubber scrap during the past fortnight. Although the export market for scrap continues strong, the domestic demand is lower than for several years. Late price quotations for the various grades were as follows:

(Prices to Consumer)

Auto tire peelings	ton	19.00	@21.00
Mixed auto	ton	6.00	@ 8.50
Bicycle tires	ton	5.00	@ 6.00
Clean solid truck tires	ton	23.50	@25.00
Boots and shoes	ton	15.00	@17.50
Arctics, untrimmed	ton	10.00	@12.50
Inner tubes, No. 1	lb.	.03¼@	.03⅝
Inner tubes, No. 2, compounded	lb.	.01¾@	.01⅞
Inner Tubes, Red	cwt.	1.40	@ 1.50
Air Brake Hose	ton	9.00	@10.00
Rubber Hose	ton	8.50	@ 9.00

Cotton

THE latest government estimate of the domestic cotton crop for 1931 is 16,903,000 bales. Although it appears that foreign production will be lower than last year, this heavy domestic figure has been sufficient to depress the market for the commodity still further.

Price quotations for spot middling uplands rose in the early days of the fortnight to 6.85 cents a pound on November 9, but since then have slowly dropped back to close on November 19 at 6.30 cents.

High, low and closing prices on the New York Cotton Exchange on November 19 were as follows:

	High	Low	Close	Close
		Nov. 19		Nov. 4
Dec.	6.20	6.13	6.17	6.48
Mar.	6.48	6.41	6.46	6.72
May	6.66	6.59	6.64	6.90

Tire Fabrics

The tire industry used only 11,980,749 pounds of cotton fabric in September, a marked decline from previous months. Late tire fabric prices were as follows:

(Prices Net at the Mill)

CORD			
Peeler, carded, 23/4/3	lb.	.25½@	.26
Peeler, carded, 23/5/3	lb.	.24½@	.25
Peeler, carded, 13/3/3	lb.	.22 @	.22½
Peeler, carded, 15/3/3	lb.	.22½@	.23
Egyptian, carded, 23/5/3	lb.	.35 @	.36
Egyptian, combed, 23/5/3	lb.	.40 @	.40½
CHAFERS			
Carded, American, 8 oz.	lb.	.23 @	.23½
Carded, American, 10 oz.	lb.	.23 @	.23½
Carded, American, 12 oz.	lb.	.22½@	.23
Carded, American, 14 oz.	lb.	.20½@	.21
LENO BREAKER			
Carded, American, 8¼ oz.	lb.	.20 @	.25
Carded, American, 10¼ oz.	lb.	.20 @	.25
SQUARE WOVEN			
Carded, American, 17¼ oz. 23-11 ply	lb.	.24½@	.25
Carded, American, 17¼ oz. 10-ply	lb.	.20½@	.21

Sheetings

The market for sheetings held firmly during the course of the fortnight. The current price quotations for the more popular sizes follow:

40-inch, 2.50-yard	yd.	— @	.05¾
40-inch, 2.85-yard	yd.	.05⅛@	.05¼
40-inch, 3.15-yard	yd.	.05⅞@	.06
40-inch, 3.60-yard	yd.	— @	.05
40-inch, 3.75-yard	yd.	— @	.04½
40-inch, 4.25-yard	yd.	.03⅞@	.04

Ducks

Cotton ducks were steady in price, but there was little activity in the market in the past two weeks. Current quotations follow:

Belting and Hose	lb.	— @	.20
Enameling	lb.	.20½@	.21½
Single filling	lb.	.08½@	.08¾
Double filling	lb.	.09½@	.09¾

Closing Prices on Rubber Exchange of New York, Inc.

FROM NOVEMBER 5 TO NOVEMBER 19, 1931

		Spot	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Sales
		No. 1 Standard Contract of 10 Tons													
Nov.	5	4.60	4.58	4.61	4.65	4.70	4.70	4.82	4.95	5.03	5.12	5.18	5.25	5.35	173
	6	4.75	4.72	4.75	4.81	4.88	4.95	5.02	5.10	5.17	5.24	5.32	5.40	5.50	142
	7	4.96	4.92	4.95	5.01	5.08	5.15	5.22	5.30	5.39	5.48	5.53	5.59	5.69	110
	9	5.18	5.13	5.18	5.24	5.29	5.35	5.43	5.52	5.58	5.64	5.67	5.70	5.80	282
	10	4.66	4.62	4.65	4.70	4.76	4.82	4.91	5.01	5.06	5.10	5.16	5.23	5.33	231
	11	4.65	4.62	4.65	4.71	4.78	4.85	4.95	5.05	5.09	5.14	5.18	5.23	5.33	62
	12	4.68	4.65	4.68	4.77	4.84	4.90	4.97	5.04	5.09	5.15	5.19	5.24	5.34	72
	13	4.59	4.57	4.59	4.66	4.74	4.82	4.88	4.94	4.97	5.01	5.08	5.15	5.25	102
	14	4.60	4.58	4.60	4.67	4.74	4.82	4.88	4.94	4.98	5.02	5.09	5.17	5.27	39
	16	4.56	4.54	4.56	4.63	4.70	4.78	4.84	4.90	4.95	5.00	5.07	5.14	5.24	67
	17	4.70	4.68	4.70	4.77	4.84	4.91	4.96	5.02	5.08	5.15	5.21	5.27	5.37	92
	18	4.70	4.70	4.70	4.78	4.84	4.90	4.96	5.02	5.09	5.17	5.22	5.27	5.37	214
	19	4.67	4.65	4.67	4.73	4.80	4.87	4.93	4.99	5.04	5.10	5.16	5.22	5.30	78

CHEMICALS

WITH rubber factory activity during September and October at the lowest level for those months since 1923, the demand for rubber chemicals and compounding ingredients has necessarily been light. November and December appear unlikely to show any substantial improvement, but the extremely low stocks of tires and other rubber goods seem to assure an upward trend in factory schedules after the turn of the year. Prices have been firm, with the exception of weakness in the case of some softeners.

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
A-32	lb.	.80 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.70
Altax	lb.		
Aniline oil, drums, f.o.b. works	lb.	.14½@	.16
Captax	lb		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.44½
Diphenylguanidine	lb.	.30 @	.32½
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.40
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.58½@	.61
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.37½@	.40
Monex	lb.	3.25 @	—
Oxynone	lb.	.68 @	.80
Phenex	lb.	.75 @	—
Pipsol	lb.	4.30 @	4.50
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R & H 397	lb.	.75 @	.76
R-2	lb.	1.95 @	2.15
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Tensilac, No. 39	lb.	.40 @	.42½
Tensilac, No. 41	lb.	.50 @	.52½
Thermio F	lb.	.50 @	.55
Thiocarbanilid, drums	lb.	.20 @	.22
TMTT	lb.	3.00 @	3.25
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Lead, sublimed blue	lb.	.08¼@	—
Lead, white	lb.	.08½@	.08¾
Litharge, domestic	lb.	.06¼@	.07
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)			
Blues			
Prussian	lb.	.35 @	.36
Ultramarine	lb.	.06 @	.32
Browns			
Sienna, Italian	lb.	.05½@	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.30 @	.32
medium	lb.	.31 @	.33
dark	lb.	.34 @	.36
Chromium Oxide, bbl.	lb.	.34½@	.35½
Reds			
Antimony crimson, 15/17	lb.	.40 @	.44
sulfur, free	lb.	.55 @	.66
golden, 15/17 F.S.	lb.	.20 @	.25
Indian English	lb.	.08 @	.11
Domestic (Maroon)	lb.	.11 @	—
Oximony	lb.	.13¼@	—
Red oxide, pure	lb.	.10 @	.12
Smith's 444 Crimson f.o.b. Springfield	lb.	.08¾@	.10
Rub-Er-Red, f.o.b. Easton	lb.	.08¾@	—
Venetian red	lb.	.08 @	.06
Vermillion, quicksilver, English	lb.	1.53 @	1.80
Whites			
Lithopone, Akcolith	lb.	.05 2/5@	.06
Lithopone, Albalith	lb.	.05¼@	.05¾
Lithopone, Azolith	lb.	.05¼@	.05¾
Lithopone, Vanolith	lb.	.05¾@	—
Titanium oxide	lb.	.21 @	—
Titanox B, f.o.b. St. Louis,	lb.	.06½@	.07
Titanox C, f.o.b. St. Louis,	lb.	.07 @	.07½
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.06½@	.07
ZZ (leaded)	lb.	.06⅝@	.06⅞
Horsehead Brand:			
Special	lb.	.07 @	.07½
XX Green	lb.	.07 @	.07½
XX Red, lead free	lb.	.06½@	.07
Kadox, black label	lb.	.10⅝@	.10⅞
blue label	lb.	.09⅝@	.09⅞
red label	lb.	.08 @	.08½
St. Joe, black label	lb.	.06½@	.07
red label	lb.	.06½@	.07
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.06½@	.07
Anaconda, selected lead free	lb.	.07 @	.07½
White seal	lb.	.11⅝@	.11⅞
Green seal	lb.	.10⅝@	.10⅞
Red seal	lb.	.09⅝@	.09⅞
Yellows			
Chrome	lb.	.16½@	.17
Ocher, French medium	lb.	.02 @	.03
domestic	lb.	.01½@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate, lump	lb.	.10½@	.12
Asbestine	ton	14.75 @	18.00
Barium carbonate	ton	56.50 @	57.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	36.00
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03
Blacks			
Arrow "Aerofloted"	lb.	.03½@	.08½
Bone Black	lb.	.06 @	.12½
Carbon, compressed	lb.	.03 @	.07
Carbon, uncompressed	lb.	.03 @	.07
Disperso, f.o.b. Louisiana	lb.	.03½@	—
Disperso, f.o.b. Texas	lb.	.036 @	—
Drop Black	lb.	.06 @	.14
Fumonex	lb.	.03½@	.07½
Excello, compressed	lb.	.04 @	.08
Gastex, f.o.b. Texas	lb.	.03 @	.06
Lamp Black	lb.	.10 @	.40
Micronex	lb.	.03½@	.08½
Thermatomic-Thermax	lb.		
Flex	lb.		
P-33	lb.		
United carbon, fob Tex.	lb.	.03½@	.08½
Velvetex carbon	lb.	.03 @	.06
Blanc fixe dry f.o.b. works	ton	75.00 @	90.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Clay, Kaolin, domestic	ton	8.00 @	9.00
Aerfloted, Suprex	ton	8.00 @	20.00
Colloidal	lb.	.05 @	.08
Congaree, c. l. f.o.b. mine	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	16.00 @	22.00
Mineral Flour, c.l. f.o.b. mine	ton	20.00 @	23.00
Par	ton		
Tensulite		16.00 @	—
Glues, extra white	lb.	.20 @	.25
medium white	lb.	.16 @	.20
Magnesia, carbonate	lb.	.08¾@	.11
Mica, white water grnd.	lb.	.06 @	.08
Off color (biotite)	lb.	.05 @	.07
Rotten Stone (powdered)	lb.	.02 @	.05
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	— @	2.57
Talc, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.75 @	2.00
Quaker	ton		
Superfine	ton	10.00 @	12.00
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.09¼@	.10½
Zinc Stearate	lb.	.18½@	.22

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Paradura	ton	62.50 @	65.00
Parmr, solid	ton	28.00 @	48.00
Pioneer. MR, sclid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00
R & H Hydro-Carbon	ton	27.05 @	29.00
Robertson, MR, solid	ton	34.00 @	80.00
M.R. (gran)	ton	38.00 @	80.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	— @	.26½
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.13 @	.17
Stearic, double pressed	lb.	.17 @	.22
Alkalies			
Caustic soda, 76%	cwt.	2.90 @	—
Soda ash, 58% C.L.	cwt.	1.17½@	—
Oils			
Corn, refined, bbls.	lb.	.07 @	.08¾
Cottonseed, crude		— @	.04½
Cycline	gal.	.27 @	.34
Degras (c.l. 100 bbls.)	lb.	.03¾@	—
Less c.l. (10-25 bbls.)	lb.	.04 @	—
Lots less than 10 bbls.	lb.	.04¼@	.04½
Fluxrite	lb.	.05½@	.06½
Palm Lagos	lb.	.04 @	.05
Niger	lb.	.03½@	.04
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08½
Pigmentaroil	gal.	.18 @	.23
Pine, steam distilled	gal.	.54 @	.61
destructively distilled	gal.	.54 @	.55
Witco Palm Oil	lb.	.11 @	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07½
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt. bbl.		7.00 @	—
Rosin, grade K, 280 lb. bbl.		— @	4.60
Pigmentar	gal.	.18 @	.23
Tar Retort, 50 gal.	bbl.	13.50 @	15.00
Solvents			
Acetone, pure	lb.	— @	.10
Alcohol, denatured, No. 1 bbls.	gal.	.28 @	.29
Benzol, 90%	gal.	.20 @	.21
Carbon, bisulfide	lb.	.05½@	.06¼
Carbon, tetrachloride	lb.	.06¼@	.07
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.26 @	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Turpentine, spirits	gal.	— @	.37½
wood	gal.	— @	.40
destructively distilled	gal.	.35 @	—
Waxes			
Beeswax, white	lb.	.34 @	.36
Carnauba	lb.	.26 @	.28
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06½@	.07
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02½@	—
White crude scale 124/126	lb.	.02½@	—
Refned, 125/127	lb.	.03⅝@	—
Refined, 128/130	lb.	.03¾@	—
Refined, 135/137	lb.	.05¼@	—
Refined, 138/140	lb.	.07¼@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.66

SPECIALTIES

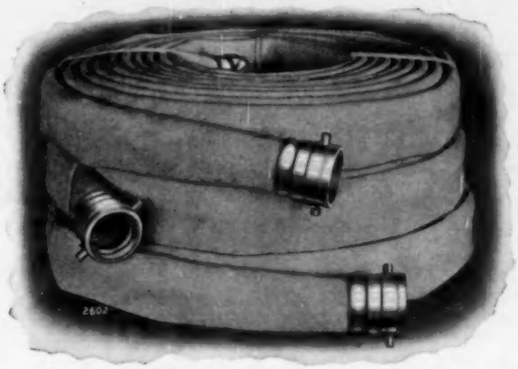
Aromatics—Rodo	lb.		
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.56 @	.60

SUBSTITUTES

Black	lb.	.08 @	.14
White	lb.	.10 @	.16
Brown	lb.	.08 @	.15

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½@	.04½
Sulfur flour, Ref'n'd, 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Telloy	lb.		
Vandex	lb.		



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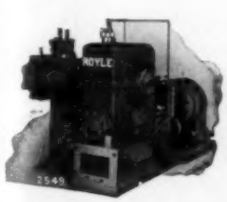

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The RUBBER AGE

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Synthetic Rubber

THE development of synthetic rubbers and rubber substitutes have been heralded from time to time, since research in the realms of synthetic substances was first started. To date none of these synthetic rubber materials have lived down the years to become a commercially important product. But the announcement within the last few weeks, emanating from the DuPont organization, that at last a real synthetic rubber composition has been evolved, must necessarily command the respect of the industry. A very imparial and frank statement of the potentialities of this new synthetic substance, which the Du Pont company has aptly named 'DuPrene,' has been made a feature of this issue of THE RUBBER AGE.